

The University of Minnesota

STUDIES IN THE SOCIAL SCIENCES

NUMBER 4

STUDIES IN THE MARKETING OF FARM PRODUCTS

BY

L. D. H. WELD, Ph. D.

Assistant Professor of Economics, Chief of Division of Research in Agricultural
Economics in the University of Minnesota

AND

STUDENTS IN AGRICULTURAL ECONOMICS



MINNEAPOLIS
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PREFACE

The Division of Research in Agricultural Economics has devoted its energies largely to studies of marketing and farmers' organizations. The results of a statistical study of organizations have been published as Agricultural Experiment Station Bulletin No. 146, entitled *Statistics of Coöperation among Farmers in Minnesota*. The group of studies contained in the present publication represents primarily the results of research work that has been done in the general field of marketing. The papers by Messrs. Jesness, Warner, and Thompson were written under my supervision in the Seminar in Agricultural Economics during the year 1913-1914; the paper by Mr. Peterson was written as part of the work required in the general undergraduate course in Agricultural Economics. Mr. Jesness and Mr. Warner were graduate students, and Mr. Thompson and Mr. Peterson were seniors in the College of Agriculture. The paper by Mr. Cavert was written under the supervision of Professor C. W. Thompson during the year 1912-1913, and the time of writing this report should be taken into consideration in reading it. All of these men had their major work in other divisions of the College of Agriculture, and hence could not spend as much time on marketing investigations as a full treatment of their subjects would require. All of the papers, however, represent original research work, and although not by any means complete studies of the topics treated, it is deemed that they contain enough new and valuable information in an important and neglected field, to make their publication worth while. The paper entitled Market Distribution was read before the American Economic Association at Princeton, N. J., in December, 1914, and is published in the *Papers and Proceedings* of that association. Permission to reprint in this place is gratefully acknowledged by the University of Minnesota and by the author.

L. D. H. WELD,
Chief of Division

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MARKET DISTRIBUTION¹

By L. D. H. WELD

Marketing is a part of production. It has to do with the creation of time, place, and possession utilities, whereas manufacturing has to do with the creation of form utilities. In discussing the problems of production, economists have usually had in mind primarily the manufacturing end, and they have drawn their illustrations of division of labor, large-scale production, organization of industry, etc., from this field. Likewise agricultural economists have given their attention principally to crop-growing, or as some call it, the "production" end of agriculture. It is true that some economists have sought to point out the application of general economic principles to mercantile organization, but never in such a way as to throw light on the present system, or to point out its weaknesses.

And yet that part of production which is covered by marketing is extremely important as compared with the manufacturing or crop-growing process. A comparison of factory or farm cost with final retail price of almost any commodity will prove this. Economists agree that they have neglected this branch of their subject, but few realize either the alluring fields for research which offer themselves, or the serious consequences that their neglect has brought about. As it is to-day, the whole system of marketing farm products stands condemned in the eyes of the public. The great majority of people believe that there is something radically and fundamentally wrong. In the agricultural parts of the country there is nothing that stirs up enthusiasm so much as fiery denunciation of present marketing methods. Many extravagant and misleading statements have passed unchallenged and have been spread broadcast throughout the country. Things have come to pass that in some of our agricultural states a college professor who finds anything sound or justifiable in the present marketing organization runs the risk of exciting serious adverse criticism, and even charges that he is "in league with the interests." Do the generally accepted principles of economics, if applied to this subject, reveal any such fundamental weaknesses as are supposed to exist, or rather do they result in a justification of the present system? It is high time that we undertook to answer this question.

Much help may be derived from an application of the principle of division of labor and specialization to the marketing process. Farm prod-

¹ This paper was read at the annual meeting of the American Economic Association at Princeton, N. J., on December 29, 1914, and is published in the *Papers and Proceedings of the Twenty-Seventh Annual Meeting of the American Economic Association*.

ucts, in passing from farmer to consumer, normally pass through the hands of certain middlemen, who may be classed roughly as local buyers or country shippers, transportation companies, one or more classes of wholesale dealers, and finally retailers. The need of the local shipping unit, in order to consolidate small contributions of individual farmers into car lots, to furnish storage facilities until time of shipment, and to establish trading connections with city dealers, is apparent. It is the link or links between country shipper and the retail store that many people have in mind when they say that there are too many middlemen.

The need of wholesale produce distributors may best be demonstrated by a consideration of the reasons why country shippers do not and can not generally sell their goods direct to city retail stores. These reasons are as follows:

1. To procure the greatest economy in local shipment, the quantity sent at one time is too great for most retailers to handle. Retailers carry a large variety of products, and storage facilities for handling large units of various commodities are out of the question. Goods would have to be sent in small allotments, and retailers would have to obtain these small allotments from a great variety of sources.

2. Shipments from local units vary in quantity from shipment to shipment and for different times of year. The city supply of many commodities comes first from one producing section and then from another. The city retailer must be able to buy from day to day in order to correlate his supply with his demand. Furthermore, the shipments from the country at one period will be insufficient, whereas at another period they are much greater than retailers can absorb. This surplus must be carried by a separate class of middlemen from the period of surplus production to that of insufficient production.

3. The quality of commodities sent by a country shipper is very variable, whereas each retail store has a fairly definite class of trade and must have goods of fairly constant quality.

4. Business relations between country shippers and retail stores are difficult to establish, and once established are difficult to maintain.

5. Retailers are notoriously "slow pay." Even wholesalers, who are in close touch with city retailers, have their difficulties in making them pay for goods within a reasonable time. Country shippers can not afford to wait for their money, because they must be paying cash for goods as they are brought in by farmers from day to day. This one obstacle is almost enough in itself to prevent direct selling from country shipping unit to retail store; at least it has been the reason why innumerable attempts at such direct sale have been given up.

These reasons suggest the functions of wholesale dealers. These functions are not generally understood; they are much more difficult, and require

a much higher degree of organization and business ability than most people realize. Frequently they will be subdivided among two or three different sets of wholesalers, as, for example, a commission merchant, handling goods on consignment, and a wholesaler; or, a wholesale receiver who buys outright, and a jobber, who sells to retail stores. In fact, it is safe to say that the great bulk of farm products arriving in our large cities passes through the hands of at least two such classes of wholesalers. For example, a large proportion of the butter made in the 800 creameries of Minnesota is marketed in New York City, passing first through the hands of a wholesale receiver, and then through the hands of a jobber. The wholesale receiver specializes in the solicitation of shipments from country creameries in Minnesota, the financing of these creameries by allowing them to draw drafts on day of shipment, the handling and storage of large lots of butter on arrival in New York, and the rough sorting-out according to quality. These functions naturally constitute a business in itself. The jobber performs an entirely different set of functions: he buys from the wholesale receiver in round lots of say from twenty to fifty tubs at a time; he sends salesmen around to innumerable stores in New York to find purchasers; he sells one tub at a time, selecting just that quality of butter which he knows each retailer, or delicatessen, or restaurant, or hotel, or steamship company wants; he delivers the one tub at a time to various parts of the city; and he very largely finances the retail stores by giving them credit, and undertakes the necessary accounting expense and losses incident to dealing with scores of small retail shops. All of these many functions now performed by the receiver and the jobber may be performed by one firm—and sometimes they are—but it has been found economical to subdivide these various steps among two different sets of middlemen for a large proportion of the trade, each set specializing on one particular class of functions.

Economists have been fond of praising the minute division of labor in the packing plant, the shoe factory, etc., and also the high degree of specialization of industrial plants, whereby one makes pig iron, another makes steel, another structural forms, etc. Often the same men who praise the economies made possible by this "age of specialization," when they hear that there are middlemen called local buyers, commission men, brokers, jobbers, etc., hold up their hands in holy horror and exclaim that there are too many middlemen. Possibly there are in some cases, and yet in still other cases the cost of marketing might be reduced by adding more middlemen. While studying the wholesale produce trade in New York City last summer, I found butter jobbers who were cutting up butter that they had bought from wholesale receivers into one-pound prints. I told them that I could add two middlemen to their present system of marketing, and reduce the total cost thereof: first, that it would be cheaper to have their cutting

done for them by other firms who could keep their machinery and skilled labor constantly employed in cutting prints; and, second, that they could save on their delivery expense by turning this function over to a centralized or coöperative delivery system, which would eliminate the vast duplication of delivery equipment and constant covering and re-covering of the same ground by a hundred different firms.

There appears to be no reason why this specialization argument should not apply to the creation of time, place, and possession utilities in the marketing process as well as to the creation of form utilities. Furthermore, it should be remembered that the present organization of the wholesale trade is not a rigid and arbitrary system. The various dealers in the main are keen competitors of each other and there are certain adjustments and readjustments going on at all times. The members of each class of wholesalers are constantly experimenting (unconsciously perhaps) by undertaking the functions of other wholesalers and overlapping into their fields of activity. Sometimes this sort of an experiment results in the dealer's falling back into his original and more specialized field, and sometimes it results in successfully combining several functions, especially when done on a large enough scale, thus resulting in what we may call integration of marketing processes, just as we speak of integration of industry. But it should be understood that when there is such integration, specialization still exists, at least among the departments of a business, just as in the case of manufacturing plants. In other words this economic justification of the present system of minute subdivision furnishes no reason for objecting to, or for not seeking out, more economical combinations of functions any more than a shoe manufacturer would hesitate to install a machine which would combine the operations now performed by three or four different workmen. The chain store may perhaps be considered such a machine in the merchandising field, because in marketing farm products, it takes over the functions of the jobber,² and, to a certain extent, of the wholesale receiver, with certain resulting economies.

Since there appears to be good economic reason for the subdivision of the merchandising process into several successive steps, it would not be surprising to find that some commodities that pass through the hands of several middlemen are marketed on smaller spreads than are other commodities that pass more directly from producer to consumer. It would be a simple matter to furnish innumerable examples of this. In other words, the cost of marketing a commodity does not depend on the number of middlemen involved; rather it depends on certain characteristics of the commodity itself. Much is said about the great waste in marketing as evidenced by the wide spread between farm producer and city consumer.

²The term "jobber" is used in this place to mean the second handlers described above in connection with the New York butter trade.

Some say that the producer gets, on the average, forty-six per cent of the price finally paid by the consumer; others put it as low as thirty-five per cent. Even if the correct average figure could be determined, it would be of little significance, because it gives no idea of the great variation in cost of marketing different commodities, a fact which has been commonly overlooked in discussions of this subject.

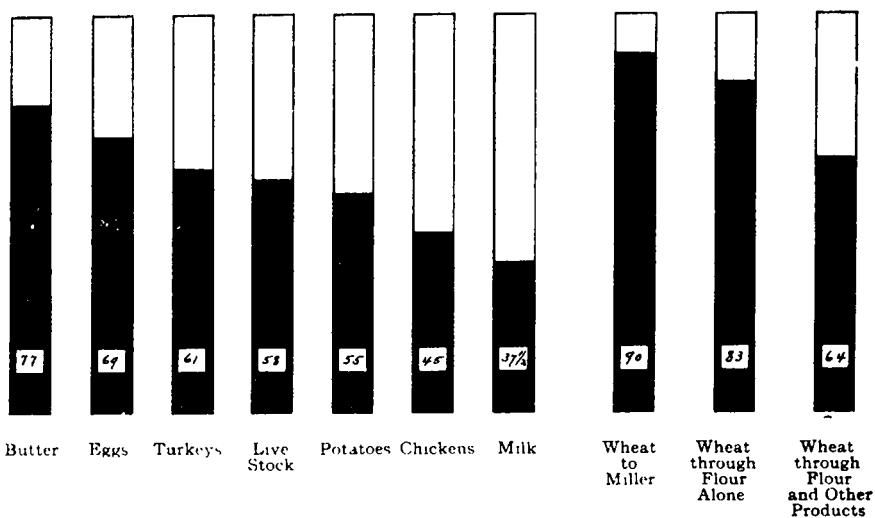


Diagram Showing Approximate Proportion of Minneapolis Retail Price Received by Minnesota Farmers, February, 1914

The proportions of Minneapolis retail prices received by Minnesota farmers for various commodities as computed in February, 1914, were approximately as follows:

	Per cent of retail price received by producer
Butter	77*
Eggs	69
Turkeys	61
Live stock	58
Potatoes	55
Chickens	45
Milk	37 1/2
Wheat :†	
to miller	90
through flour alone.....	83
through flour and other products.....	64

* Represents proportion of retail price received by country creamery.

† These figures for wheat were computed from data in Bulletin No. 130 of the United States Bureau of Labor Statistics, *Wheat and Flour Prices from Farmer to Consumer*. The data in this bulletin were based on the Kansas City market, but they apply at least approximately to the Minneapolis market.

Although these figures were compiled in Minnesota, they represent very closely the conditions in other parts of the country. At least, they give a good idea of the variation in cost of marketing different commodities, which is the object of their use in this place. If such commodities as apples, asparagus, lettuce, etc., were included, the proportion received by the farmer would be much less. The California cantaloupe grower, for example, receives less than twenty per cent of the price for which his cantaloupes sell in New York City. The principal reasons for this variation in cost of marketing aside from distance from market are as follows:

1. Perishability. The more perishable a commodity is, the greater the cost of marketing. This is the principal reason for the wide spread on such articles as strawberries, cantaloupes, lettuce, etc. In the case of other commodities, such as butter and eggs, perishability is largely overcome by cold storage.

2. Regularity or irregularity of supply throughout the year. The more evenly the production of a commodity is distributed throughout the year, the less it costs to market it. Although butter and eggs are produced in greater volume during some seasons than others, the fact that they are produced to a certain extent at all seasons undoubtedly reduces their costs of marketing.

3. Waste and shrinkage. Closely allied to the question of perishability is the extent to which products are subject to damage, breakage, or shrinkage in transit, in storage, or in preparation for market. Breakage is an important factor in egg marketing; shrinkage in poultry marketing.

4. Volume in which product is handled. For those commodities that are handled in greatest volume, the facilities for marketing have become more highly developed. To say nothing of superior transportation facilities, efficient cold storage plants aid in the marketing of poultry and butter; special loading and unloading machinery and highly efficient terminal elevators in the marketing of grain.

5. The extent to which a commodity may be subdivided into well-established qualities or grades. There is a well-recognized method of "scoring" butter which facilitates its handling. Grain is subdivided into such universally accepted grades that it is often bought and sold by merely naming the grade or at least by inspection of a small sample. When the buyer must carefully inspect the whole of the commodity he is buying, the cost of marketing is apt to be higher. The possibility of having standard grades enables the use of market quotations, which are often used as "trading bases" and which immensely facilitate the marketing of commodities.

6. The relation between bulk of a commodity and its intrinsic value, which affects the importance of the freight rate as a factor in marketing. Potatoes and grain are of large bulk but of small intrinsic value, and

hence the transportation charge constitutes a larger proportion of the total spread between producer and consumer than in the case of butter, which is a commodity of small bulk in relation to its value.

When these differences in cost are considered, it is apparent that some commodities are marketed on very small margins. As compared with manufactured articles in general, the great staple farm products pass through the hands of a greater number of middlemen but are marketed on smaller gross margins. Those who have been fond of calling attention to the wide spread between producer and consumer have dwelt on apples, strawberries, cantaloupes, celery, and other highly seasonal and perishable articles, and have failed to notice that the much more important products like wheat, butter, eggs, etc., are marketed on relatively small margins. If these staple articles were given their due weight in finding an average for all commodities, I believe that it would be found that the proportion received by farmers would be considerably higher than any figure heretofore spread broadcast by writers and speakers on this subject. From computations that I have made for Minnesota products, I am convinced that on the average the Minnesota farmer receives about sixty per cent of the price finally paid for his products.³ Not that the exact per cent is of any particular value in itself, but that the estimates heretofore given out are both inaccurate and misleading.

But to get to the real heart of the marketing problem, it is necessary to carry our study of marketing costs still further and analyze the gross spreads between producer and consumer for different commodities into their component parts. As illustrations of this kind of research, I present an approximate analysis of marketing costs for two different commodities: Minnesota butter marketed in New York City, and Minnesota poultry marketed in Minneapolis. In both of these cases it will be observed that certain manufacturing costs are included with the marketing costs.

³ This figure is a rough average of the proportions of final retail prices received by farmers for various commodities, weighted with the respective values of the commodities that were marketed by Minnesota farmers. The values marketed were obtained directly from the 1910 census in some cases; in others, they have been estimated from production statistics. The proportions received by producers as used in this computation do not agree absolutely with those given in the text on page 5, because allowances have had to be made for many complicating factors. The true weighted average of these figures is over sixty-three per cent, although it is referred to as sixty in the text for the purpose of being safely conservative. The figures used in the computation are as follows:

	Value of commodity marketed	Per cent of retail price received by farmer
Milk	\$ 7,000,000	45
Cream	1,400,000	40
Butter fat	11,000,000	75
Dairy butter	3,600,000	75
Poultry	1,800,000	45
Eggs	6,200,000	69
Live stock	34,000,000	55
Grains	56,000,000	70
Potatoes	3,000,000	50
Other vegetables	1,000,000	30
Fruits	200,000	30

APPROXIMATE AVERAGE COST PER POUND OF MARKETING MINNESOTA BULK BUTTER IN
NEW YORK CITY

	Cents per pound
Farmer receives for $\frac{1}{2}$ pound of butter fat.....	25.0
Cost of manufacture in creamery.....	2.5
Freight and cartage to New York.....	1.5
Wholesale receiver's gross margin.....	0.5
Jobber's gross margin.....	1.5
Retailer's gross margin.....	5.0
<hr/>	
Price paid by consumer.....	36.0

This varies of course with the different channels through which butter passes. Since butter is often used as a leader by grocery stores, the retail margin is often less than five cents.

APPROXIMATE AVERAGE COST PER POUND OF MARKETING CHICKENS FROM MINNESOTA
FARM TO MINNEAPOLIS CONSUMER

	Cents per pound
Farmer receives	9.1
Transportation (by express).....	1.4
Feeding	0.25
Killing labor and expense.....	0.75
Killing loss in shrinkage.....	1.0
Packing	0.5
Storage, interest, and insurance (three months).....	1.1
Wholesaler's gross margin (overhead and delivery cost and profits)	1.9
Retailer's gross margin.....	4.0
<hr/>	
	20.0

From analyses of this sort, certain important facts are brought out: first, the part played by transportation costs is almost insignificant when considered as a proportion of final retail price. It has been estimated that, on the average, freight charges do not constitute more than five per cent of retail prices. Numerous computations that I have made for different commodities appear to confirm roughly this estimate. The thought in this connection is that possibly a disproportionate amount of attention has been given to transportation matters; second, on the whole the margins taken out by the wholesale trade are also very small in view of the important functions performed. The net profit per unit of goods handled is so slight that it is only on a large volume of business that a wholesale produce dealer

can make profits commensurate with those expected in other lines of production where equivalent amounts of capital, ability, and risks are involved; third, the most important single portion of the total spread between farmer and consumer is that taken by the retailer. In fact, from a large number of instances I have found that of the total spread between producer and consumer, the retailer takes on the average nearly one-half. In other words, the slice taken by the retail store on the average is nearly as large as the slices taken by local buyers, railroads, and wholesalers combined. This state of affairs is, of course, due to the high costs of retailing and not to the high profits of that branch of distribution. It also suggests that the marketing problem is very largely one of retail merchandising. It is the high cost of retailing that has undoubtedly made possible the development of coöperative stores in other countries, and led to the development of the mail-order house and the chain store in this country.

When the statement is made that there are too many middlemen, it may mean one of two things: either that there are too many classes of middlemen, i. e., too many successive steps; or that there are too many of each class, i. e., too many wholesalers, or too many retailers. While the splitting-up of the marketing process into a number of successive steps is largely a question of division of labor, as already pointed out, the question as to whether there are too many of each class is at least partially one of large-scale production, although other considerations are also involved. In the wholesale trade, we already have relatively large business units. In the retail trade, on the other hand, there are innumerable small stores scattered all over our large cities, and it is this fact that is so frequently condemned by those looking for a solution of the marketing problem.

Retail distribution is only beginning to be studied scientifically, and it is perhaps too early to come to any very definite conclusions as to the efficiency or possible improvement of the present system. There are two or three facts, however, that are worthy of consideration in this connection: Assuming that the cost of retailing would be lowered by eliminating the corner grocery store and concentrating the business in a few large stores, there appears to be no very practical way of bringing this about. As long as men (or women) with no experience in merchandising can eke out an existence by establishing and living in their little stores and delicatessens; as long as wholesale grocers and produce dealers will extend credit to such individuals; and as long as enough people will do at least part of their trading with the neighborhood store, just so long will the little corner grocery remain in existence. Second, it is not at all certain that greater concentration of the retail business would result in any lower cost of doing business, because I believe that it has been shown that in the large stores located in the heart of the city, the cost of doing business is higher than in the small corner grocery. This is due partly to the fact that certain

fixed charges like rent increase in greater proportion than sales, but more to the fact that these stores furnish superior and more expensive service the demand for which, on the part of consumers, is growing faster than their purchasing power.

Another consideration of interest in this connection is the manner of distribution adopted by the chain store, which is the most important recent development in the retail grocery trade. In Philadelphia alone, there are nine chain-store companies with a total of 1,260 grocery stores. It is claimed that they do over half of the retail grocery trade in the city. The chain store is an example of large-scale production in merchandising. It gains its economies through buying in large quantities; standardization of methods, store equipment, and products handled; saving in delivery and advertising; and saving of interest and losses by doing a spot-cash business. But the significant feature of this system is that it gets its distribution not through large, centralized, retail stores, but through innumerable small stores scattered throughout the city and even in the suburbs.

It may be considered by many that the arguments used up to this point appear to justify the present system of market distribution almost in its entirety. I have purposely refrained from alluding to the weak spots, however, because I feel that in order to obtain a sane view of the problem, it is necessary for us to obtain a clear conception of fundamental propositions herein set forth. Enough has been said perhaps to lead to the conclusion that there is ample economic justification for the fundamental aspects of present-day market organization, and that the solution of the marketing problem lies not in revolutionizing the present system, but in ferreting out its weaknesses, and applying remedies to cure these weaknesses. There certainly are defects in the marketing system, just as there are in our manufacturing and agricultural systems. These weaknesses can be discovered only by painstaking intensive studies of the methods and costs of marketing each product in turn, because where there is weakness in marketing one commodity, there is strength in the marketing of another. Although research in the field of marketing has not gone far enough to point out all the shortcomings of the present organization, certain weaknesses have been unearthed, many of which are not recognized by most of the casual observers who have delivered themselves of opinions with regard to the present system.

It is convenient to classify the defects of the present system under four heads, as follows:

1. Those connected with marketing at country shipping points.
2. Those connected with the transportation system.
3. Those connected with the wholesale trade.
4. Those connected with the retail trade.

In discussing these weaknesses, I shall not attempt to discuss those

of the retail trade or of the transportation system; but shall confine myself to those connected with marketing at country points, and the wholesale trade. The principal weaknesses of the system of marketing at country points are as follows:

1. Careless packing and lack of uniformity in packages.
2. Insufficient attention to quality of goods, to sorting before shipment, and to varieties produced.
3. Poor roads from farm to country shipping point.
4. Lack of knowledge of market conditions and prices on the part of farmers.
5. Poor business management on the part of local buyers, country stores, and farmers' organizations.
6. Lack of honesty on the part of both farmers and local buyers.
7. Abuse of monopoly power when there is one buyer, and price agreements when there are several buyers.

Some of the principal weaknesses of the organization and methods of the wholesale produce trade are as follows:

1. Opportunity for fraud and sharp practices. This is due largely to the fact that country shippers are not adequately represented in wholesale markets—a very important phase of the marketing problem.
2. Lack of adequate inspection systems. For some commodities, like grain, there are splendid inspection and grading systems, a function which has been taken over by the government in many states. For other commodities an inspection service is either inadequate or lacking altogether.
3. Wholesale markets are often poorly located, sometimes greatly congested, and often lacking in proper terminal facilities.
4. Lack of an adequate price-quotation system. For some commodities the methods of determining quotations have reached a high degree of development, while for others they are inadequate. Also the quotation systems in some cities are more efficient than in others. This whole question of quotations is of the greatest importance and interest. Whether a quotation should be determined by actual sales on an exchange, or by the vote of the whole exchange, or by a quotation committee of an exchange, or by outside market reporters is an unsolved problem, and practices vary greatly in different cities and in different trades. There has been much litigation with regard to the issuing of quotations by produce exchanges, and the New York Mercantile Exchange is being investigated at present by the Attorney General of New York State. One difficulty with the quotation problem is that the economic functions and value of market quotations, especially their use as "trading" or "selling" bases, has never been fully recognized and understood.
5. Lack of sufficient organization and means of obtaining and disseminating market information, resulting in uneven distribution of products

among the several markets with consequent gluts and scarcities. This weakness is greatly exaggerated by most writers, because it applies only to the highly perishable and seasonal products. In the grain, live-stock, butter, eggs, poultry, and other trades, the balancing of prices between different markets results in such an even and automatic distribution that the results can only excite our wonder and admiration.

6. Lack of standardization of methods, customs, grades, packages, trade terms, etc., in different markets.

It is only necessary to recite these various shortcomings of our present system to prove that the marketing problem is vastly complex, and that improvement can be brought about only by careful investigation along a number of lines and by the application of one remedy here, and another there. The object of this paper is to state the problem rather than to present a solution, but study of the subject has gone far enough at least to indicate in a general way the nature of some of the remedies. The most important may be classified broadly under four heads: first, coöperation, meaning a type of organization owned and democratically controlled by those who do business through it; second, voluntary associations among dealers; third, government regulation; and, fourth, education.

In this country coöperative organizations have developed mainly among producers, and hence have to do principally with marketing at country points. In some countries they have been carried to terminal markets and even into the export trade. In Western Canada, the farmers market a large part of their grain through their own organizations in the Winnipeg market. A few attempts are being made along this line in the United States, but the extent to which farmers' organizations should assume functions other than those connected with local marketing is a problem that needs careful consideration. Minnesota is far in the lead of all other states of the United States with respect to the development of coöperation among farmers. There are now over 1,000 coöperative marketing organizations in Minnesota, including creameries, which also manufacture, and in 1913 they marketed over \$50,000,000 worth of farm products. The movement has been growing so rapidly in that state that it needs *direction more than encouragement*.

The part played by associations of dealers in regulating and improving the marketing machinery is not fully appreciated. In many instances such associations have fallen into disrepute because of monopolistic tendencies—sometimes real and sometimes imaginary. It is safe to say, however, that the most highly organized and efficient marketing organizations in the country are to be found among our produce exchanges.

The functions performed by such organizations in furnishing market places and trading facilities, adopting rules to prevent fraud, collecting and disseminating market information, and in providing systems of inspection

and grading, are invaluable to the economical marketing and even distribution of certain commodities. Such organizations are gradually extending their fields of usefulness, and they must not be overlooked either for what they have done in the past or for what may be accomplished by them in the future.

Many features of the marketing system can be dealt with efficiently only by the government itself. We already have state inspection of grain in many states, and federal inspection, or at least federal supervision, has become a live issue. We have state warehouse laws which govern the operations of grain elevators, and the operations of cold storage plants. Some states have laws which provide for the bonding and licensing of commission merchants, and which compel them to show their books in case of complaint. New York State has recently passed an apple-grading law, and she has also established a Market and Food Department to deal with marketing problems. Minnesota has adopted a state brand for butter, and other states are contemplating a similar move. Several states have passed special laws to make possible the formation of coöperative organizations. And so on. Government regulation is an important factor in the solution of the marketing problem.

Finally, these various remedies should be supplemented by education. The principles of marketing should be covered in every course in elementary economics; specialized courses in market distribution should be given in agricultural colleges and schools of commerce; the public should be educated to the fact that they have to pay for the elaborate services that they encourage and demand on the part of retailers; and business men should be educated in matters of efficient merchandising.

In connection with these remedies, public markets and direct marketing by parcel post and express should be mentioned. Public markets where farmers meet consumers have been given relatively more attention than they deserve. They never can play a very important part in the solution of the problem for the following reasons: Only an infinitesimal part of a large city's food supply can be grown within hauling distance; farmers who haul to market can not afford the time necessary to wait around a large part of the day to sell to consumers; a very small proportion of the housewives of a city can leave their children or their household or social duties to go to market; they are open only part of each year; and the competition of public markets can not reduce prices in retail stores as much as is commonly imagined because people in general are willing to pay for the superior service offered by the stores. Such public markets are good as far as they go and should be encouraged—especially certain modifications of them—but let us not be too optimistic with regard to their possibilities.

A similar thought might be expressed about the possibilities of direct marketing by parcel post or express. The quantity of farm products so

marketed is undoubtedly on the increase, but it will always be an extremely small proportion of the total volume. Several reasons might be given why direct marketing is not apt to develop on a large scale. While reading the bulletin, *Marketing Eggs by Parcel Post*, recently issued by the United States Department of Agriculture, I made a list of seventeen different things that farmers were told they must do, ranging from candling their own eggs to assuming losses from breakage, in order to make direct shipment a success. This bulletin, although written in an optimistic vein, furnishes the best of reasons why direct marketing of eggs can not develop on a large scale.

In conclusion, let me again call attention to the fact that economists have not only neglected these problems, but that they have not even gone into the matter sufficiently to know what the real problems are. Universities in our large cities have little realized the opportunities for valuable research work in the various wholesale trades at their very doors. And I can vouch for the fact that some of these problems are also very fascinating. It is not only a matter of collecting vast amounts of empirical data; it is also a matter of solving intricate problems, and most of these problems require a good sound knowledge of economics for their solution. A very few of our state universities have begun this work but the most important movement in this direction is the establishment of the Office of Markets in the United States Department of Agriculture, which has already begun just such painstaking investigations as I have suggested. The great need is to get down to the fundamental principles underlying the subject of market distribution. There is perhaps no field of economics in which the fallacious and misleading statements of uninformed writers and speakers go unchallenged by economists to such an extent. Happily the indications are that more adequate attention will be given to this important and interesting field in the future.

THE MARKETING OF LIVE-STOCK PRODUCTS IN MINNESOTA

By K. F. WARNER

Meat, as the word is used here, refers to the food product of hogs, sheep, and cattle, with the exception of veal. Veal constitutes only one to two per cent of the total amount marketed and it varies so in weight, grade, and price that it was felt that the averages used below would be more accurate if it were excluded. Twin City meat is almost entirely a packing-house product and statistics indicate that a majority of all the meat, the country over, comes from the large centralized plants. The marketing of this product involves its passage from the crude form of live stock in the hands of the stockmen to the carcasses in the packing houses, and thence to the retailer and consumer.

Five courses are open to the farmer who has fat stock to sell: First, he may kill and dress his own stock and sell direct to consumers or country stores; second, he may sell to local butchers; third, to local stock shippers; fourth, he can ship his own stock; and, fifth, he can ship with his neighbors through a coöperative shipping association. Home dressing and curing of the meats is largely impractical, however, as few farmers have either the necessary equipment or training. When a man knows what his stock is worth and can get a local butcher to pay it, the second method of marketing saves expense and is entirely satisfactory. Such conditions are unusual, however, and both of the first two methods have a very limited field, as the supply in the producing sections is generally greater than the local demand, necessitating the seeking of an outside market. Thus, as local trade consumes but a small part of the stock produced, the farmer's marketing problem consists of finding the cheapest way to ship to South St. Paul, Chicago, South Omaha, or whatever general market is most accessible.

If a man has enough stock to fill a car, the best way is to ship it himself. This is done to a large extent in the principal stock-raising states and in certain parts of Minnesota. The expenses of the local buyer are saved and the owner may accompany his animals to market in person. Only a limited number can do this, however, as a considerable proportion of meat producers in the country are men who have but a few animals to market at one time and who, therefore, have to let some other person gather a carload here and there and ship for them. The local stock buyer

has done this, and in most instances has been of economic value to the small stockman. By buying a few head here and a few there, he has enabled the farmer to dispose of his stock as it becomes fat. Not only that, but the stock raiser has been saved the prohibitive freight expense of shipping only a few head at a time and of attending to business details of which individual farmers know but little. The disadvantages of this method are that the local buyer has to be recompensed for considerable time and risk involved in soliciting and handling shipments, and that such a buyer is too often able to take advantage of farmers who are ignorant of market prices.

Coöperative shipping associations are important features of the coöperative movement which has made such headway in the last few years. Sufficient stock to ship and proper management of the associations are the two things most essential to cheaper marketing through them. These associations combine the good points of the local buyer and individual shipping systems and obviate the disadvantages of both. By means of them the small grower can combine his offerings with those of his neighbors into full carloads and ship at carload rates. Efficient handling and selling are also possible if the right man is selected as manager. More might be added in favor of these associations but suffice it to say that while the local buyer handles stock on a margin of from fifty-five to seventy-five cents a hundred, the last report of the Coöperative Shipping Association of Litchfield, Minnesota, figured that it cost them thirty cents a hundred to sell cattle, thirty-two cents a hundred for hogs, and forty-seven cents a hundred for sheep. This margin includes all railroad and yard charges, and an assessment to cover association expenses and to provide a sinking fund.

Once en route to the stockyards live stock is handled in the same way whoever the shipper may be. Minimum weights for a thirty-six foot car are 22,000 pounds for cattle, and 17,000 pounds and 12,000 pounds respectively for single-deck cars of hogs and sheep. All weight in excess of the minimum adds proportionately to the minimum rate. State laws and federal regulations require that all stock be unloaded at least every thirty-six hours for feed, water, and rest.

It is often difficult to decide to which market stock should be consigned. In general, as it leaves the producing West and approaches the consuming East, its value rises. The rise is based, in the main, on the extra freight rate and on the estimated shrinkage in weight while in transit. Government figures show an average shrinkage for short hauls of about three per cent. If cattle were selling for ten cents a pound, the loss from shrinkage would be thirty cents a hundred or three dollars on a thousand-pound steer. Certain markets have specialties and pay more for certain grades of stock, but as a rule the Chicago price exceeds the prices of more western markets by the amount of the freight rate plus the extra shrinkage

of the eastern trip. Thus, cattle are normally worth about thirty to forty cents per hundred and hogs from twenty to thirty cents per hundred more in Chicago than in South St. Paul. The best and fattest stock usually find a stronger market in the East. The margin varies, however, and when a shipper has a choice of two markets, one further east than the other, he often plans to unload for rest at the nearer one, shipping East if he can not get a bid which suits. When located midway between two markets, as at many points in southern Minnesota and Iowa, and when the freight rate to them is the same the shipper is more apt to send his stock east. Thus, much of the stock of southern Minnesota goes directly to Chicago. South St. Paul, the principal live-stock market and packing center of Minnesota, draws principally from the North and West. Many of the better grades that stop there, however, are reshipped to eastern markets. Freight rates and the condition of each market at the particular time of shipping are the deciding factors in any case.

MARKETING AT THE STOCK YARDS

To whichever market live stock is consigned, the marketing system that handles them upon arrival is practically the same. In the changing of live stock into meat and meat products, four things make a big plant more economical and efficient than a smaller one: It permits a more efficient organization for marketing; a more extensive division of labor in which each man becomes a specialist; a more economical and complete utilization of by-products; and a more efficient and less unwieldy government inspection service. The packers have, therefore, concentrated in a few cities which are favorably located with reference to transportation from production areas, and to consumption centers. There is a stockyards company at each market which is an independent organization, and which provides pens and other facilities near the packing houses where animals are received and cared for until sold. While under different managements and ownerships, the yards of one market are almost identical with those of another and practically the same system of selling is followed in all of them.

Although a packer may control the stockyards company through stock ownership, as at South St. Paul, it should be emphasized again that the latter is always a separate company with its own organization and officials. It owns the pens, yards, and equipment of the yards proper; it receives and reships the stock; provides a supply of feed and water; and weighs all animals for both buyer and seller. The commission firms are composed of men whose business it is to sell or buy for their patrons; they act principally as experienced salesmen, whose training and experience make them better able to transact business in the yards than the strangers who ship in the stock.

A load of cattle arrives on the Monday market, which is usually the strongest and largest. When hauled to the unloading platform, the stockyards company receives, unloads, counts, and yards it in the pens assigned to the consignees. Stock is not consigned to individuals but to commission firms operating in the yards. The pens are owned by the company and allotted to the commission firms, but rent is charged to the shipper as a per head yardage fee. Upon receiving the load, the commission man sorts it to the best advantage for selling, and supervises the feeding and watering until sold.

The buyers consist of five classes: the local packer who is buying for immediate slaughter; the buyer of a packing company who has no plant at that particular market; "order buyers," or those who are buying on orders from outside parties; the speculator or "scalper" who picks up bargains to resell; and, lastly, the stockman who comes to buy feeders. The buyers of the local packers and the feeder-buyers are the ones that really constitute the backbone of a market. The representatives of the outside packer, the order buyers, and the scalpers, are the ones who prevent violent fluctuations in prices and who tend to establish and hold the normal spread between different markets. If South St. Paul values decline more than those of Chicago, some scalper or packer's representative bids in to hold until prices rise or for shipment east, and these purchases strengthen the market. Thus, though Swift & Company have the only large plant in South St. Paul, they must bid in competition with other buyers who purchase for shipment to other markets. In Chicago one other class of order buyers makes a strong demand for good, heavy cattle. Orthodox Jews are not supposed to eat beef that has been killed over three days, and as a result many "Kosher" cattle, as they are called, are bought for shipment to New York on foot, this demand tending to keep up the price.

With these possible purchasers before him, the commission man plans how best to sort the cattle, and dickers with prospective customers, holding out for as much as he thinks he can get. Finally, a buyer rides into the pen and looks the stock over. "I'll give \$7.90" (per hundredweight); "They're worth \$8.15 to-day," the commission man replies. The buyer shakes his head and starts to leave. "Eight even," he calls back. "Eight and a nickel," the commission man concedes. "Weigh 'em," from the buyer, and the deal is over. No binding memorandum is made of the trade until night, when each sale is registered, together with price, name of firms, and weights. After the deal is closed, the cattle are run over the scales and weighed by the stockyards company. By means of a patent device, a cardboard slip is inserted in the scale and into it is impressed the weight of the load. Such recorded weights are accurate and official.

With weight and selling price at hand, the commission firm makes out

the check due the shipper on his load. Although the packers pay cash to the commission firms, the latter often mail checks to country shippers before they actually receive their pay from the packers. Fixed charges are assessed against each head of stock sold in the yards and consist of a commission, a fee for yardage, and one for feed. These together with freight, terminal charge, insurance, and inspection in case of hogs, are deducted by the commission men from the selling price of the stock before the check is remitted to the shipper, or deposited to the shipper's account, as the case may be.

Many loads come in and are sold by the firms to which they are consigned without the owner's being in or near the yards. Also many orders for feeders are filled by the commission men without the buyer's ever seeing the animals until unloaded on arrival. Considering, also, that the checks are made out and the charges deducted by the commission men themselves, it would appear that there is a good opportunity for fraud. In the first place, however, a firm will not get trade unless it has a good reputation, and since there is keen competition for shipments among commission men, there is every inducement to be square and to show as good results as possible. Second, the firms are combined into an Exchange with fixed rules to govern trading, and these rules are strictly enforced. Any man can get a chance to do business in the yards, but unless his reputation is good he will not be admitted to the Exchange, and the buyers can readily regulate their bids so as to prevent him from getting any business. To safeguard the shipper further, a \$20,000 bond is given by each firm to the Exchange. With all these precautions, with the keen competition between firms, and with the speculators ready to steady the market, the shipper can be sure that these experienced men are able to procure more for his stock than he can get himself. Moreover, those who deal often in the yards consider the commission men as their friends and advisers, and in many instances the commission men advance money to them for buying feeders.

MARKET CLASSES AND GRADES

Such, in short, is the yards system. All animals that pass through the market are sold according to the classes and grades to which they belong. The classification is based on the use to which the animals will be put, this being determined chiefly by their sex, age, weight, form, quality, and condition. The grades within the classes run from prime and choice to inferior, and represent the different degrees of excellence in quality, condition or fleshing, and form. The classifications are comparatively uniform at the various live-stock markets and similar grades with some local variations are used as the basis of published quotations at leading market centers.

Cattle are divided into seven general classes, the first five of which consist of animals which are ready for slaughter. The first one is called "beef cattle" and includes only fattened steers that may be sold as carcass "beef." "Butcher stock" consists of the inferior steers and all the cows and heifers except the very poorest. These latter are called "cutters," "strippers," and "canners," and are the old, thin animals which are fit for little but boneless cuts, canned and cured meats, and sausage. The fourth class, which is made up of "bulls," is used mainly for sausage, though the younger and better ones are often sold as dressed beef or beef cuts, in which case they are classed as butcher stock. The fifth division includes calves and is known on the market as such. The last two classes are called "stockers" and "feeders" and include thin cattle, both male and female, which are sold to feeders for further fattening. The "stockers" are younger and generally weigh under seven hundred pounds, while the "feeders" are older and heavier.

About sixty per cent of the sheep killed at the packing centers are not called sheep but "lambs." Both males and females are called "lambs" from the spring of their birth until early summer the next year, though the larger "natives" are often too heavy for "lamb" carcasses when only ten to twelve months old. At that time the earlier-maturing ewe lambs pass over into the "ewe" class, which is composed of all females fit for killing but too old to grade as lambs. The wethers, which mature more slowly than the ewes, are known as "yearlings" from their second summer until about two years old. Just above the pastern joint of the sheep is a flat joint or suture where the bone is joined, top and bottom, by a finger-like dovetailing. This "flat" or "lamb" joint will "break" in lambs and yearlings and is a sure means of telling young carcasses from ewes, wethers, and the other older classes. Wethers that have passed the age limit for "yearlings" are known as "wethers" and with the addition of "bucks" and "stags" conclude the killing classes. Feeder "lambs," "ewes," and "wethers" are comparable to the "stockers" and "feeders" of cattle.

Hogs are less closely classified than other kinds of stock. "Butcher hogs" are mainly barrows and correspond to "beef cattle." "Packing hogs" contain the rougher, less uniform grades and include old brood sows and the like. As their name implies, they are used mostly for "packing" or, in other words, for smoked, dry salt, or barreled pork. "Light hogs" average from 125 to 220 pounds and make the better grades of bacon and fresh pork. The "pigs" are the younger animals weighing less than 125 pounds. After them come the "boars," "stags," "roughs," and other odds and ends.

Prices paid and quoted on these classes are based chiefly upon the killing value of the animal. Thus, "canners" sell below "beef cattle" because they will dress out a smaller proportion of valuable meat; and stock-

ers are worth less than feeders because they require more time and feed to put them in condition for slaughter.

Many people fail to understand the fluctuation in live-stock prices and lay the blame at the door of packer monopoly and manipulation; but to a large extent, at least, the market is subject to the law of supply and demand. The packer's buyer goes on the market in the morning with instructions to buy a certain number of head of various kinds. If the receipts of animals desired by the packer are light, his purchases naturally "bulb" the market; if the receipts are heavy, the buyer holds off and makes his purchases at the lowest price possible. The average market price is generally lower in the fall, as that is the time of year when the range "grassers" and the hogs and pasture lambs pour in. Likewise feeders are high when the pasture season opens and June always shows a scarcity of "beef cattle."

Excluding "stockers," "feeders," and "calves," the average quotation for cattle at South St. Paul in 1913 was about \$6.25 per hundred. Hogs sold for about \$8.10 per hundred and sheep for \$6.00 per hundred. These are the prices that the packer paid but are not the net values that the producer received because the latter pays the freight and selling fees as mentioned above. To lay down one hundred pounds of cattle at South St. Paul costs the average Minnesota shipper about fifteen cents for freight alone. The freight on hogs averages about sixteen cents per hundred and that on sheep about seventeen cents. Switching charges at South St. Paul are \$2.50 per car.

Yardage fees are 25 cents per steer, or nearly 2.5 cents per hundred; hogs, 8 cents per head, or 3.5 cents per hundred; and sheep, 5 cents per head or about 6 cents per hundred. Feed costs from 2 to 3 cents per hundred pounds live weight. Commission fees for selling are \$10.00 per 22,000-pound car of cattle, or 4.5 cents per hundred; hogs, \$8.00 per 17,000-pound car, or 4.7 cents per hundred; and sheep, \$8.00 per 12,000-pound car, or 6.7 cents per hundred. Totaling the expenses and subtracting them from the average selling price leaves the producer a net price on cattle for 1913 of about \$6.01; hogs, \$7.83; and sheep, \$5.66. These prices were received, however, only when producers shipped direct in car lots. If handled through a shipping association or sold to a local buyer, the net prices received by the producer would be less. Shrinkage is also of so varying a quantity that it has been omitted even though it is unavoidable expense. The approximate prices paid by the packer, however, during 1913 were \$6.25, \$8.10, and \$6.00 respectively as stated above, and these prices will be used herein as the bases on which packers' costs and profits will be figured.

TABLE I

AVERAGE COST OF MARKETING 1000-POUND CATTLE, 230-POUND HOGS AND 80-POUND SHEEP FROM COUNTRY SHIPPING POINT TO AND THROUGH THE SOUTH ST. PAUL STOCK YARDS

	Freight per head*	Switching		Commission		Yard- age per head	Feed per head	Total per head
		per car	per head	per car	per head			
Cattle.....	\$1.50	\$2.50	\$0.11	\$10.00	\$0.45	\$0.25	\$0.12	\$2.43
Hogs.....	.37	2.50	.03	8.00	.11	.08	.03	.62
Sheep.....	.14	2.50	.02	8.00	.05	.05	.01	.27

* Rough average rate for Minnesota shippers to South St. Paul.

THE PART PLAYED BY THE PACKER

Stock bought by local packers is immediately driven into the waiting pens for water and rest. Long inclined chutes lead them thence to the killing beds located near the top of the packer's plant. On the killing floors of the larger houses the labor is divided, each man having a single task in which he becomes an expert. In the cattle crew, for instance, there are the "knockers," "hoisters," "stickers," "headers," "leggers," "siders," "backers," "splitters," "washers," and so on in endless succession. The carcasses are run on overhead rails into large cooling rooms, while the hides, fats, and offal are moved downward from the killing beds and distributed to the different parts of the plant where again there is a man for almost every task. The chilling, cutting, curing, and otherwise preparing of the various meats, and the manufacture of many meat products and by-products is not only an important branch of the packing business, but constitutes a large part of the whole industry. A selling department solicits orders and a freight crew fills them, passing both meat and by-products on to the packers' distributing houses and "route cars" and thence to the retailer.

In 1913 when cattle cost the packers around \$6.25 per hundred, they were wholesaled by them in carcass form at about \$11.50 per hundred. Hogs cost about \$8.10 and pork wholesaled at \$12.50. Sheep cost \$6.00 and the carcasses wholesaled at \$11.90 per hundred. Is the service rendered by the packer to the consumer commensurate with this margin in the price of meat? In figuring the selling price from the live cost a packer must consider what is known as "dressing per cent." The cattle slaughtered at South St. Paul reappear as carcasses that average only about fifty-one per cent of the live weight. We, as consumers, buy meat only. In addition to the meat, the packer in buying cattle, buys head, legs, hide, and offal, which total about forty-nine per cent of the live weight. The \$8.10 paid out per hundredweight for hogs buys seventy-seven pounds of pork and thirty-three pounds of by-products. Sheep average forty-seven per cent

carcass and fifty-three per cent of by-products. Considering this factor and omitting the value of the by-products, a one-thousand-pound beef animal that cost \$6.25 per hundred, or \$62.50, produces a carcass that cost \$62.50 but weighs only 510 pounds and therefore has a dead cost of \$12.25 per hundred, or more than the carcass sells for. At the live-cost figures used here, the dead cost of hogs is \$10.50 per hundred and of mutton \$12.75 per hundred. These figures are summarized as follows:

TABLE II
COST TO THE PACKER

	Cost per cwt.	Dressing per cent	Price paid by packer per cwt. of carcass
Beef...	\$6.25	51	\$12.25
Pork...	8.10	77	10.50
Mutton.....	6.00	47	12.75

TABLE III
PACKER'S SELLING MARGIN PER HUNDREDWEIGHT

	Dead cost	Selling price	Margin on carcass alone
Beef	\$12.25	\$11.50	-\$.75
Pork	10.50	12.50	+\$ 2.00
Mutton	12.75	11.90	-\$.85

Referring to Tables II and III it can be seen that carcass beef and mutton are sold for less than was paid for the live animal, while pork alone, which is much better adapted to curing, sells for more than the dead cost.

Another expense that the consumer fails to consider is condemnation. From one-half to two per cent of all the cattle, hogs, and sheep killed at the packing centers are condemned for disease and "tanked." The proportion varies from one-half to six per cent, but the above is the general average. Packer buyers watch this closely when buying, but whatever receives the "U. S. Condemned" on the killing floors is valuable only for tankage and fertilizer.

Packers sell and distribute in cities through their own jobbing or wholesale houses. Meat is sent out from the coolers to the various branches and distributed through them, rather than directly to the local retailer. Swift and Company have the only large packing plant in or near the Twin Cities, but Armour, Cudahy, Morris, Sulzberger and Sons, Hormel, McMillan, and other packers have their own distributing stations in St. Paul

and Minneapolis. So general and systematic is this wholesale distributive system and so large a part of the nation's meat passes through it, that competition largely equalizes wholesale prices throughout the country. Other firms compete with Swift and Company in the Twin Cities and Swift competes with them where they have the shipping advantage. However, conditions often vary; the New York market is sometimes lower than the Chicago market; St. Paul pays almost the same as Duluth, and Chicago patrons at times pay the same for home-killed meat as does Philadelphia for Chicago meat. Wholesale prices on the same grade vary but little at different points, and freight bills and selling expenses, to a certain extent, are paid by all rather than the distant few. Selling expenses are necessarily large but probably no more so than in any other large business of similar scope.

The packer, then, stands the loss in shrinkage and condemnation, pays the expenses of his help from buyer to seller, supplies and operates his equipment, and sells carcasses of beef and mutton for less than they cost. The explanation of this apparent anomaly of course is to be found in the value of the by-products. The weight and value of by-products from a thousand-pound steer, a 230-pound hog, and an 80-pound sheep at South St. Paul are approximately as follows:

TABLE IV

By-product	Weight and price	Value
CATTLE:		
Hide.....	65 lbs. at 16c	\$10.40
Head, legs and feet.....	.....	.40
Heart.....	3 lbs. at 6c	.18
Liver.....	9 lbs. at 8c	.72
Tongue.....	3 lbs. at 12c	.36
Fats.....	18 lbs. at 7½c	1.35
Casings (rounds).....	7 lbs. at 5½c	.37
Casings (middles).....	4 lbs. at 6c	.24
Bung.....	.....	.25
First and second stomach.....	18 lbs. at 3c	.54
Miscellaneous.....	.....	.25
Total.....	.....	\$15.06
By-product	Weight and price	Value
SHEEP:		
Heart.....	½ lb. at 6c	\$0.03
Tongue.....	¼ lb. at 12c	.03
Pelt.....	.....	.75
Head.....	.....	.05
Fats.....	1½ lbs. at 6c	.09
Casings.....	½ lb. at \$1.00	.20
Paunch and miscellaneous.....	.....	.05
Total.....	.....	\$1.20

By-product	Weight and price	Value
Hogs:		
Heart.....	3/4 lb. at 6c	\$0.05
Liver.....	2 lbs. at 10c	.20
Tongue.....	1/2 lb. at 10c	.05
Fats.....	8 lbs. at 3c	.24
Head, check off.....	.....	.15
Casings.....	.....	.15
Paunch.....	1/2 lb. at 20c	.10
Ears and snouts.....	.....	.05
Miscellaneous.....	.....	.10
Total.....	.....	\$1.09

The total receipts for the stock bought by the packers would thus figure up to about \$73.71 for a thousand-pound beef, \$23.22 for an average 230-pound hog, and \$5.67 for an average 80-pound sheep.

The costs of buying, "packing," selling, and distributing are difficult to get. Swift and Company's report on their 1912 business shows the distribution of one dollar's worth of sales as follows:

For live stock	\$0.80
For labor .....	.08
For freight .....	.05
For other expenses .....	.04
For profit .....	.03
	—
	\$1.00

The same company goes on to state that its profit on fresh meat in 1912 was one fifth of one cent per pound. Whether or not these figures are representative, it is evident that the packers represent a high degree of efficiency in manufacture and distribution; that the net profit per unit of sales is small; and that it is chiefly because of a rapid turn-over and a vast volume of business that they are enabled to make substantial net profits on a year's business.

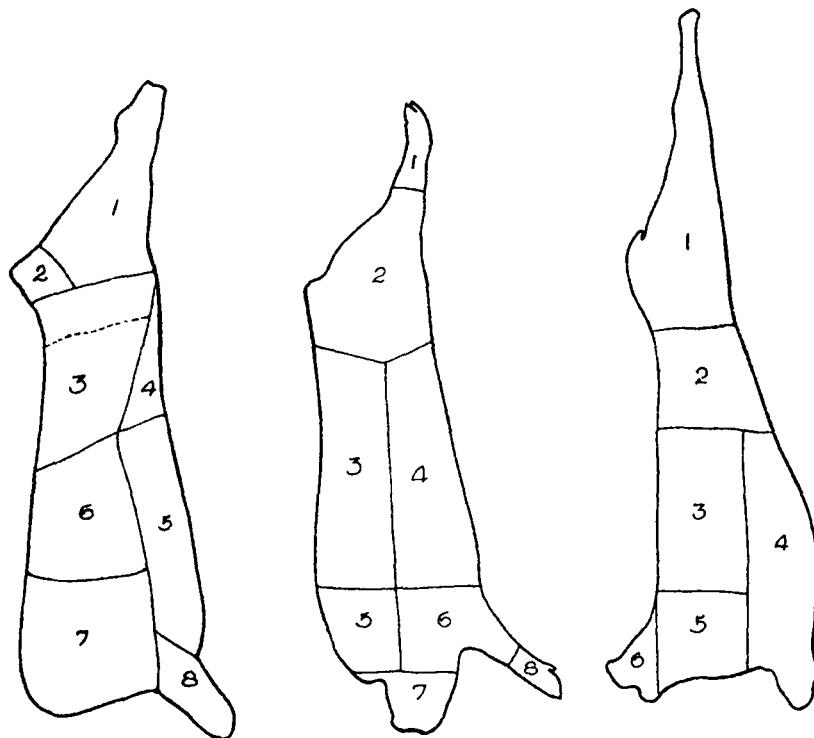
THE RETAIL TRADE

Retailers in the larger cities commonly buy their meat by personal inspection in the "coolers" of the packers' local supply houses. Packer salesmen solicit business, but few butchers buy much meat without seeing it. Carcasses are often shipped to the branch house when only two or three days old, too "green" to be suitable to sell. Those selected by the butcher

are marked and left to hang seven to fourteen days before delivery. During that time acid formation in the tissues softens the tough fibres and adds flavor.

Four problems confront the retail butcher in ordering meat and in determining his selling price: What grade of meat shall he buy; what cuts will move the best; what does each cut cost per pound; and what price must he charge above that to include expenses and profit? The quality of meat that a shop can sell depends on its location. Prosperous communities buy the better grades, such as prime steers. Workingmen's communities consume more cow beef. Some downtown shops trade with all

Diagram Showing the Various Wholesale Cuts of Meat



Steer Carcass:

1. Round
2. Rump
3. Loin¹
4. Flank
5. Plate
6. Prime Rib
7. Chuck
8. Shank

Hog Carcass:

1. Foot
2. Ham
3. Loin
4. Bacon
5. Butt
6. Shoulder
7. Cheek
8. Foot

Lamb Carcass:

1. Leg
2. Loin
3. Rack
4. Stew
5. Shoulder
6. Neck

¹Above dotted line, sirloin; below, porterhouse.

classes and sell both grades. The tastes of different cities also vary, and Minneapolis is said to be more of a "cow town" than St. Paul. The same thing holds true with regard to cuts of beef. A carcass is composed of several cuts, each having a different character, a different demand, and a different value. Shoulder cuts contain considerable bone and are apt to be rather tough; rib is good, and adapted to roasting. The loin furnishes the choicest cuts and, together with the round, can be best sold in that popular American style, steak. If a butcher were to cut a side of beef and sell it all at the same price, the choicer parts would be taken up immediately, while the poorer cuts would be unsalable. To move the whole, then, the butcher raises the price of the more popular cuts and lowers it on the others, until economy induces part of the trade to take the "boils" and "stews." The class of buyers again makes a difference in the cuts a shop can handle. When they all are well-to-do, price gives way to palate and only good cuts move. If a shop were to buy straight cattle in such a district it would soon be loaded up with "chucks" and "plates," while if located among less prosperous people the "loins," "rounds," and "ribs" would move more slowly. It is of interest to note, however, that porterhouse and loin chops are often demanded by people who can ill afford them. Poor loin steaks have the preference over good chuck regardless of price. To balance these differences the jobbing houses cut some carcasses themselves and distribute "chucks" or "loins" as the trade demands. As a result, the wholesale prices of different cuts also vary.

Sheep and lambs are usually sold to retailers as whole carcasses, though cuts are quoted on most of the markets. Cattle cuts are numerous though much less so than those of hogs. Much of the pork that is sold is first pickled, smoked, or rendered, operations which the big companies can do more cheaply than the retailers. A few dressed hogs are sold, especially in the winter, but cured and smoked meats, fresh loins, and some fresh shoulders and hams are the principal pork products that are sold to retailers, pork loins being the principal fresh-pork product. Thus, even though a butcher buys whole carcasses, he must consider the relative cost of each when he figures out the selling price. The following tables¹ show the cost to the retailer of the various cuts at different carcass prices. Cutting methods vary in different places and these percentages are not exactly the same as those used before, but they show, in general, the butcher's problem.

With the meat in the shop and the cost figured out, the question then is, What must be added to cover expense and profit, and which cuts will carry the most per pound? Few people realize the expense of a small

¹ These tables are a modified form of similar tables that appeared in a booklet published by the Moneyweight Scale Company of Chicago, Ill.

TABLE V

APPROXIMATE COST PER POUND TO THE RETAILER FOR THE DIFFERENT CUTS OF
BEEF, PORK, AND MUTTON AT DIFFERENT WHOLESALE
PRICES OF WHOLE CARCASSES

Beef

	Per cent of total wgt.	Cost 9 cts.	Cost 9½ cts.	Cost 10 cts.	Cost 10½ cts.	Cost 11 cts.	Cost 11½ cts.	Cost 12 cts.	Cost 12½ cts.	Cost 13 cts.	Cost 13½ cts.	Cost 14 cts.
Round....	13	.12	.12½	.12¾	.13¼	.14	.14½	.14¾	.15	.15½	.16	
Loin.....	16	.16	.16½	.17½	.18	.18½	.18¾	.19	.19½	.19½	.20½	
Rump r.st.	6	.09½	.09½	.09¾	.10¼	.12	.12½	.13½	.14	.14½	.15½	.16
Back r.nd.	3	.08	.08½	.09½	.10	.10	.10½	.11½	.12	.12½	.13	.13½
Flank....	4	.04	.04	.04	.04	.04	.05	.05½	.06½	.07½	.08	.08½
Suet.....	2	.04¾	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
Shank....	7	.01½	.01½	.02	.02	.02	.03	.04	.05	.06½	.07½	.08½
Ribs.....	12	.12	.12½	.13½	.14¼	.16	.16½	.17	.17½	.17½	.17¾	.18
Plate....	11	.05½	.06	.06½	.06½	.06½	.07	.07½	.08	.08½	.09½	.10
Chuck....	22	.08	.08½	.09	.09½	.10	.10½	.11	.11½	.12½	.12¾	.13½
Neck....	2	.04¾	.05	.05	.05	.05	.06	.06½	.07½	.08½	.09	.09½
Waste....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	100											

Pork

	Per cent of total weight	Cost @ 7 cts.	Cost @ 8 cts.	Cost @ 9 cts.	Cost @ 10 cts.	Cost @ 11 cts.	Cost @ 12 cts.
Ham....	19	.10	.11½	.12¾	.13¾	.14	.14½
Shoulder....	16	.06½	.07½	.08½	.10	.11½	.12
Loin.....	12	.08	.08½	.10	.11½	.12¾	.14½
Bacon bellies.	11	.10	.11½	.11½	.13½	.14½	.15
Back fat....	15	.06½	.07½	.08	.08½	.10	.12
Leaf lard....	4	.08	.08½	.10	.10	.12	.13½
Head....	7	.04	.04	.04½	.05½	.06½	.07½
Feet....	3	.01¾	.01¾	.01¾	.04	.04	.04
Trimmings....	8	.05¾	.06½	.07½	.08	.08	.08½
Spare ribs....	2	.06½	.07½	.08	.09½	.10½	.12
Neck bones....	2	.03	.04	.04	.04½	.05½	.05½
Waste....	1	.....	.....	.....	.....	.....	.....
	100						

Mutton

	Per cent of total weight	Cost @ 12 cts.	Cost @ 13 cts.	Cost @ 14 cts.	Cost @ 15 cts.
Leg....	25	.14	.14¾	.16	.18
Chops....	36	.16	.17	.18	.20
Shoulder....	15	.10	.11½	.12	.12
Breast....	12	.08	.08	.10	.10
Neck....	6	.06½	.06½	.06½	.06½
Waste....	6	.....	.....	.....	.....
	100				

shop and there follows a list of the approximate expenses of a typical shop, compiled from figures taken in the Twin Cities and checked against those published in the report of the New York Mayor's Market Commission:

TABLE VI
ANNUAL EXPENSES OF A TYPICAL BUTCHER SHOP

Rent at \$75.....	\$900.00
Repairs	60.00
Interest on \$2,000 capital at 6 per cent.....	120.00
Postage, printing, etc.....	100.00
Advertising	25.00
Salaries and wages:	
Proprietor at \$100 per month.....	\$1,200.00
Butcher at \$16 per week.....	832.00
1 boy at \$10 per week.....	520.00
	2,552.00
Horse and wagon at \$25 per month.....	300.00
Ice	300.00
Sawdust	25.00
Telephones (2 at \$4 per month).....	96.00
Lights	50.00
Sharpening saws, cleavers, etc.....	40.00
Paper, twine, and skewers.....	75.00
Depreciation on equipment.....	40.00
Incidentals	250.00
Total	\$4,933.00

A shop with these expenses would do an annual business of about \$20,000, so that the cost of doing business is about 24.7 per cent of the gross sales.² A carcass of beef costing the butcher \$11.50 per hundred must therefore be sold for \$15.28 per hundred in order that he may come out even.

The practices vary in different shops; certain large expenses such as rent, interest, etc., are common to all, while others may not appear. Paper is often not considered an expense because some weigh it with the meat. Laundry-work has not been included, although the total would be around seventy dollars annually, as many butchers require the men to pay for their own laundry. Also many butchers do not include regular salaries for themselves. One of the most important items is for the delivery boy and horse, which together figure up to \$820, or about twenty-two per cent of the

² The data at hand are insufficient to conclude that 24.7 per cent is an accurate average for all retail butcher shops of the Twin Cities. The cost varies, of course, in different shops. It will be noticed that the proprietor's salary is included at \$100 per month. If this had not been included, as is common with many shops, the cost of doing business would figure only about 18.7 per cent.

whole. Whether the delivery should be abolished or not is another question. While it is in existence, the consumer must pay for it and it goes down as the next largest item outside of rent and proprietor's own salary.

After his shop expenses comes the item of waste. While not so true with pork, as fewer whole carcasses are bought, there is considerable waste with beef and mutton. Pieces of bone or tallow are frequently cut off before weighing and the price of the amount sold must be high enough to pay for them. Then, too, there is always a certain amount of meat lost in a shop. A piece which goes out on the wagon may not prove to be what the customer ordered and may be returned. After a half day in the sun the chances are against its keeping. Some pieces move very slowly and there are always stale odds and ends which represent either a sacrifice or a total loss. Figures obtained from a number of Twin City butchers indicate that the amount of meat actually lost in a shop, together with the bone and trimmings which find their way into the fat box, constitute nearly ten per cent of the total amount handled by the shop. This fact enables one to understand why the butcher hates to cut off even a tenth of a pound of fat and bone from a two-pound steak. As indicated, however, this ten per cent waste is not an entire loss. Part of it can be used for sausage and sold at a profit. The bones and rough fat are bought by rendering plants for one to two-and-one-half cents a pound. The rest, however, is total waste and includes shrinkage in weight, spoiled pieces, bloody spots, and those mysterious odds and ends which no one can account for. In the better class of shops meat is often trimmed before being weighed for the customer. The price, however, is correspondingly higher in these shops than in those where all purchases are weighed untrimmed. The prices included in later tables are taken as the average of all classes of shops. The "waste," therefore, does not include the total amount of bone, trimmings, etc., but is restricted to that per cent which is almost absolute loss.

The expense of the credit system averages from one to two per cent of the gross sales. Interest on the money, extra trouble, and bad debts make an additional burden on each pound of meat. Some maintain, however, that the trade and satisfaction that it brings pays for its extra cost.

Before making out his prices a butcher must also consider the seasonal variation. A short study of the curves plotted on the accompanying diagrams shows the variation that occurs at different months of the year. The figures used are all Chicago figures for 1913. These were used as they were more complete, accurate, and comparable than any others obtainable. Cattle, for instance, show fairly strong in January, sink in February when the renters are moving and unloading their stock, move back and forth through the spring, reaching the high mark usually in June when most of the farmers are feeding their stock on grass. Fall, with its run of grass

and range stock, always brings a slump, although the demand for winter feeders in September generally tends to strengthen it. The curves representing the few wholesale figures that were obtainable show that these prices like those of the cattle fluctuate frequently. These fluctuations correspond in the main to those of the live animals.

It is when the retail figures are reached, however, that the biggest

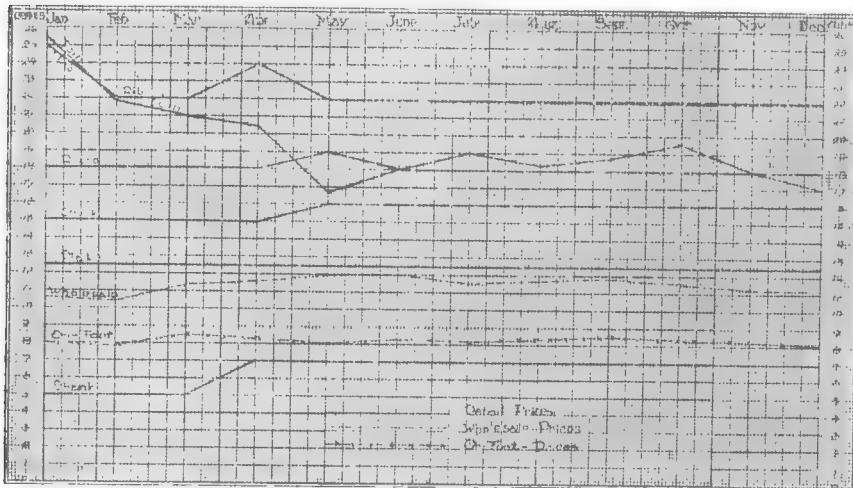


Diagram Showing Average Monthly Prices of Cattle, and Wholesale and Retail Prices of Beef in Chicago, 1913

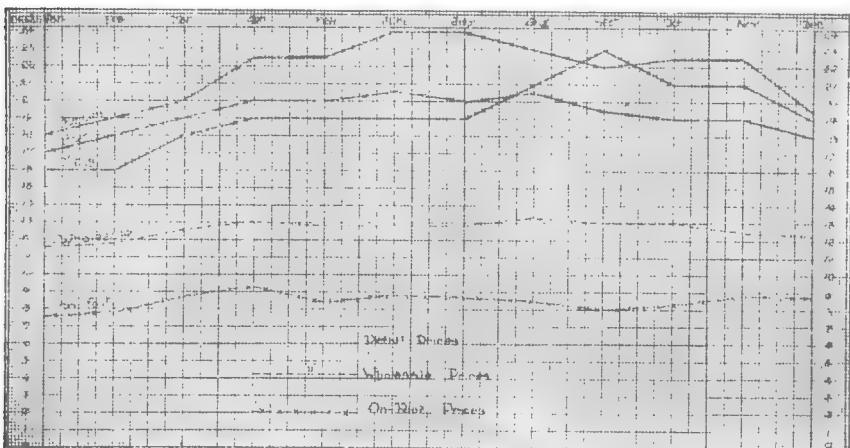


Diagram Showing Average Monthly Prices of Hogs, and Wholesale and Retail Prices of Pork in Chicago, 1913

change is noted. Some cuts vary in accordance with the price on foot, while some do not vary at all. Studying the curves of all the classes of meat reveals these facts: First, fluctuations are fewer in retail prices than in the other two; second, prices on the cheaper cuts tend to remain stationary; and, third, prices of the higher-priced cuts vary in general accordance with the price of live stock, but their fluctuations are more violent than those of the prices upon which they are based.

These facts suggest the following conclusions: First, retail prices do not vary in strict accord with the cost price; and, second, since they must cover both the original cost of the meat and the expenses of doing business, the margin between them and the buying price must be wide

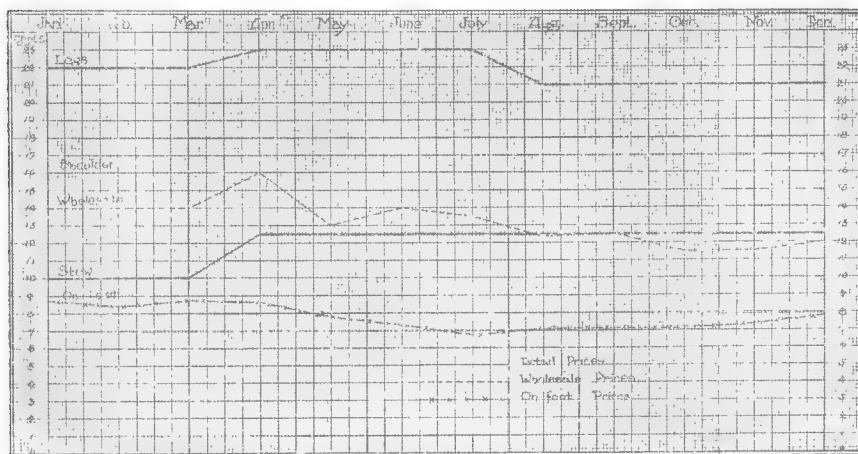


Diagram Showing Average Monthly Prices of Lambs, and Wholesale and Retail Prices of Lamb in Chicago, 1913

enough to permit minor wholesale fluctuations without seriously affecting the butcher's margin. The consumer is willing to pay twenty-one cents for twenty-cent beef one day and twenty-one cents for twenty-two-cent beef the next rather than to pay the actual varying cost. Of course, such a system does not keep the retailer's margin absolutely constant and it is perhaps more often too high than too low. Nevertheless it saves trouble with the consumer and makes a fairly stable basis for the shop men to work upon. In some of the large shops price lists are made out four times a year and printed for the shop men to learn. Corrections are added here and there but the bulk of the list remains fixed regardless of the daily swings of the live-stock market.

Furthermore, it is apparent that the curves representing the cheaper cuts are nearly straight lines, while those of the higher cuts vary more fre-

quently and often violently. It may be concluded that the demand for cheap meat is fairly steady. Of more importance than that, however, is the fact that only part of the prices can be controlled by the butcher. People will indulge in loin and rib if they can afford it, and they will buy chuck and plate only when the prices are low enough to be an inducement. Applying the lever where the strength is the greatest, or "charging what the traffic will bear," is the retailer's solution. We thus find the poorer meat fairly constant in price, while the better cuts vary enough to maintain the gross margin for the whole. Thus the seasonal variation, such as the scarcity of meat in the early summer and the demand for small, frying cuts instead of the boils and roasts, tends to raise decidedly the price of loins and rounds, while it affects the cheaper cuts very little.

TABLE VII

APPROXIMATE AVERAGE RETAIL PRICES OF BEEF, PORK, AND MUTTON IN TWIN CITIES
FOR 1913

Beef

Cut	Price	Per cent of total weight	Retail price on basis of 100 lbs.
Rib.....	\$0.19	9.5	\$1.81
Loin.....	.26	17.5	4.55
Round.....	.20	24.0	4.80
Chuck.....	.15	22.0	3.30
Plate.....	.10	13.0	1.30
Flank and shank.....	.07	9.0	.63
Suet.....	.04	3.0	.12
Waste.....	.....	2.0	....
Total.....	.....	100.0	\$16.51

Pork

Cut	Price	Per cent of total weight	Retail price on basis of 100 lbs.
Chops.....	\$0.19	12.0	\$2.28
Shoulder.....	.14½	8.0	1.16
Butts.....	.17	6.0	1.02
Spare ribs.....	.13	2.0	.26
Ham.....	.19½	21.0	4.10
Bacon.....	.21	21.0	4.41
Lard.....	.12	12.0	1.44
Neck, bone, feet, etc.....	.04	4.0	.16
Trimmings.....	.11	13.0	1.43
Waste.....	.....	1.0	....
Total.....	.....	100.0	\$16.26

TABLE VII—*Continued*
Mutton

Cut	Price	Per cent of total weight	Retail price on basis of 100 lbs.
Legs.....	\$0.18	31.0	\$5.58
Shoulder.....	.14	16.0	2.24
Chops.....	.23	30.0	6.90
Stew.....	.08	18.0	1.44
Waste.....	.....	5.0	.....
Total.....	.....	100.0	\$16.16

All these facts have to be considered by the retailer in determining the cost of each pound of meat: first, the relation to the total expenses; second, the price to be charged on each pound in order to come out even; and, third, the cuts that can carry the biggest load. The retail prices charged in the Twin Cities in 1913 for all cuts of meat have been collected and averaged, and are shown in the foregoing table. Grades vary considerably, although enough firms have been included to make the average representative.

The following table summarizes the preceding figures, and compares the prices on foot, at wholesale, and at retail, all on the basis of one hundred pounds.

TABLE VIII
AVERAGE PRICES OF CATTLE, HOGS, AND SHEEP IN TWIN CITIES FOR 1913

	On foot	Wholesale price	Retail price
Beef.....	\$6.25	\$11.50	\$16.51
Pork.....	8.10	12.50	16.26
Mutton.....	6.00	11.90	16.16

The absolute figures as shown above are of less concern to the average consumer than are the justice and fairness of the margins. He will pay \$16.51 for one hundred pounds of beef if it costs that much to produce it, but the thing that causes most of his complaints is the fear that someone in the selling chain is getting more than his share. The following tables give a summary of prices on foot, at wholesale, and at retail:

TABLE IX

SUMMARY OF MARKETING COSTS AND MARGINS FOR A 1,000-POUND BEEF, A 230-POUND HOG, AND AN 80-POUND SHEEP

From Farmer to Packer

	Received by farmer	Freight commission, yardage, etc.*	Paid by packer	Per cent received by farmer
Cattle.....	\$60.07	\$2.43	\$62.50	96.1
Hogs.....	18.01	.62	18.63	96.7
Sheep.....	4.53	.27	4.80	94.4

From Packer to Retailer

	Packer pays	Packer's gross margin	Packer receives			Packer's margin (per cent of selling price)
			Carcass	By-products	Total	
Cattle.....	\$62.50	\$11.21	\$58.65	\$15.06	\$73.71	15.2
Hogs.....	18.63	4.59	22.13	1.09	23.22	19.8
Sheep.....	4.80	.87	4.47	1.20	5.67	15.4

From Retailer to Consumer

	Retailer pays	Retailer's gross margin	Consumer pays	Retailer's margin (per cent of selling price)
Cattle.....	\$58.65	\$25.55	\$84.20	30.3
Hogs.....	22.13	6.67	28.80	23.2
Sheep.....	4.47	1.61	6.08	26.5

* These figures represent the bare cost which would be involved by a producer in shipping direct in car lots. If sold to a local buyer or shipped through a cooperative association, the cost would be higher and the net amount received by the farmer (first column) correspondingly lower. Shrinkage also has not been subtracted from amount received by the farmer.

The figures for cattle may be interpreted as follows: During 1913 the average price brought by 1,000-pound cattle at South St. Paul was \$6.25 per hundred, or \$62.50 apiece. The average cost of selling such an animal from farm to packer was \$2.43, thus netting the producer \$60.07, or 96.1 per cent of the selling price.³ The packer paid \$62.50 for the beef and sold the 510-pound carcass for \$11.50 per hundred pounds, or \$58.65. The \$3.85 deficit, the cost of handling, and the profit were covered by receipts from the by-products, which had a value of \$15.06. In other words, the packer sold his \$62.50 beef for \$73.71, retaining a margin of \$11.21, or 15.2 per cent of his selling price. The retailer paid the packer \$58.65 for the 510-pound carcass, and sold it for \$16.51 per hundred pounds, or

³ See footnote to Table IX.

\$84.20, realizing a margin of \$25.55, or 30.3 per cent of selling price. The figures for sheep and hogs may be interpreted in the same manner.

Although the packer sells beef and mutton carcasses for less than what he pays for the live animals, the hog carcass brings more than the cost of the live animal. The reasons for this are that the hog carcass constitutes a larger proportion of the live weight, that hog by-products are of relatively small value, due especially to the absence of a valuable pelt or hide, and that hog products are raised more in value by the manufacturing process, due to the cutting-up of the carcass and the curing, smoking, and storing of certain parts. When the receipts from by-products are included, it will be seen from the table that the packer receives margins of 15.2 per cent on cattle, 19.8 per cent on hogs, and 15.4 per cent on sheep, all of which are reckoned on the packer's selling price.

Are these margins too large? Swift and Company's figures, as quoted before, place the cost of stock as eighty per cent of their total selling price. The figures presented herein are slightly higher than eighty per cent, but this may be accounted for by the fact that greater values are realized from highly manufactured by-products, whereas only the values of the crude by-products are used here. Out of his margin ranging from 15.2 per cent on cattle to 19.8 per cent on hogs, the packer must pay his operating expenses and obtain his profit. The operating expenses include those of buying, dressing, manufacturing, refrigeration, transportation to distributing points, maintenance of wholesale houses, etc. Just what part of the gross margin is consumed by expenses and how much is left for profit, it is impossible to say, although it was shown above that Swift and Company has claimed that profit constitutes but three per cent of sales, which is less than one fifth of the gross margin.

The retailer, as was shown in Table IX, sells beef on a margin of 30.3 per cent of selling price, mutton at 26.5 per cent, and pork at 23.2 per cent. The demand for certain cuts of beef makes the margin on that commodity the highest. Pork is sold on the smallest margin because it is handled largely in the form of smoked meats and wholesale cuts, thus minimizing the loss from waste. Smoked meats are also not so perishable as fresh meats and hence the risk in handling is smaller and the margin narrower.

As shown previously, the expense of a shop doing an annual business of \$20,000 averages about 24.7 per cent of the gross sales. This cost includes wages of the proprietor, and interest on the capital invested. As compared with this 24.7 per cent, the margins taken on the three principal kinds of meat are 30.3 per cent, 26.5 per cent, and 23.2 per cent respectively. The profits do not appear to be abnormally large. The expenses of butcher shops are large in proportion to sales for causes that may be

attributed largely to the customs and desires of the consuming public. In the first place the public usually prefers to buy its meat at stores not too far away from home. Consequently there are a large number of small butcher shops, each with a small volume of business. Small-scale business means relatively high expenses, just as large-scale business in the packing plant means relatively small expenses in comparison with sales.

More important, however, is the service demanded by consumers. This service calls for inspection of animals when killed; cleanliness and proper temperature from slaughter to consumption; ageing and ripening of meat which adds to the flavor but takes space in the "coolers;" the keeping on hand of numerous kinds and classes of meat by the butcher at all times; the presence of a sufficient number of clerks to give prompt service; and, most important of all, an adequate delivery system. Big shop or little shop, large order or small order, long trip or short trip, the customer must get what he wants when he wants it, which is usually "at once."

The following table presents a summary of marketing costs, showing the amount taken out by each factor in the marketing process, and the per cent that each of these amounts is of the total final value of the products of each kind of animal:

TABLE X

SUMMARY OF MARKETING COSTS AND DISTRIBUTION OF GROSS RETURNS FOR A 1,000-POUND BEEF, A 230-POUND HOG, AND AN 80-POUND SHEEP
ON THE BASIS OF THE CONSUMER'S PRICE

	CATTLE		HOGS		SHEEP	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
Farmer receives.....	\$60.07	60.5	\$18.01	60.2	\$4.53	62.2
Freight, yardage, feed, etc.	2.43	2.4	.62	2.1	.27	3.7
Packer's gross returns.....	11.21	11.3	4.59	15.4	.87	12.0
Retailer's gross returns.....	25.55	25.8*	6.67	22.3*	1.61	22.1*
Total value.....	\$99.26	100.0	\$29.89	100.0	\$7.28	100.0

* It should be noted that these returns for retailers are expressed as per cents of the total receipts, i. e., on final retail price of carcass plus the amounts received by packers for by-products. They are not comparable with the retailers' cost of doing business, and should be used with care.

The most significant feature of this table is that in each case the farmer receives slightly over sixty per cent of the price for which his animal finally sells. It should be remembered that direct shipment by the farmer in carload lots is assumed in this case, that no allowance is made for shrinkage, and that if the animal were sold to a local cattle buyer or through a co-operative shipping association, the cost would be somewhat higher. Since a large proportion of Minnesota stock is sold through local

buyers, it would perhaps be more nearly accurate to say that the Minnesota farmer receives on the average about fifty-seven or fifty-eight per cent of the amounts finally paid for all products from his stock.

Equally interesting is the fact that of the total spread between farmer and consumer, the retailer takes well over half, and that in the case of cattle, he takes nearly twice as much as the packer and other marketing agencies together. It has already been shown, however, that the wide margin taken by the retailer is due not to his ability to obtain greater net profits, but to the high cost of retailing, due in turn to expensive service demanded by consumers. In view of the widespread notion, however, that on the average the farmer gets less than fifty per cent of the final value of all his products, it is rather noteworthy that in the case of live stock he obtains between fifty-five and sixty per cent.

COÖPERATIVE POTATO MARKETING IN MINNESOTA

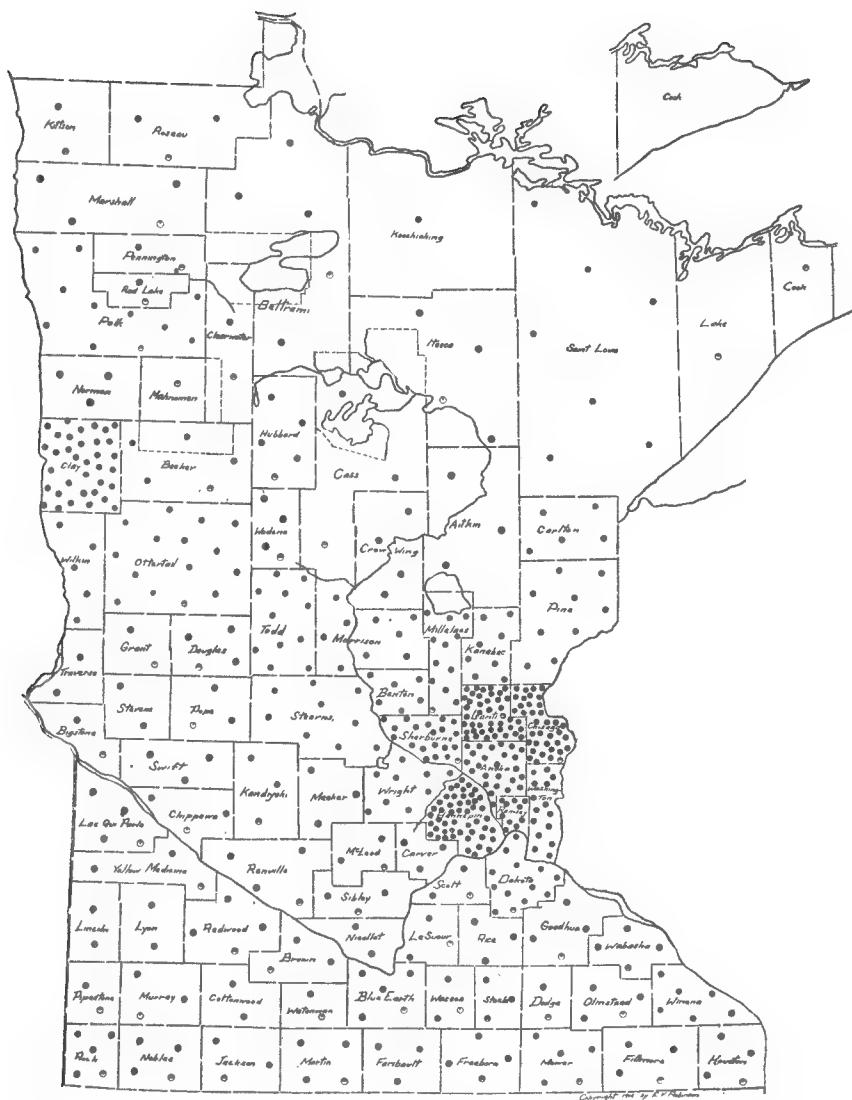
By O. B. JESNESS

The principal potato-growing sections of the United States are located in the northern tier of states. According to the 1910 census, Minnesota ranked fifth in potato production, as indicated by the diagram which shows the relative importance of the ten leading states. The dot map of Minnesota's production in 1909 shows the principal regions of production within the State. On this map one dot represents 50,000 bushels of potatoes, so that the production of each county is directly proportional to the number of dots shown on the map. It is apparent that there is a leading potato district near the Twin Cities, and that there is a second region centering around Clay County in the Red River Valley. The ten leading counties in 1909 were as follows: (1) Hennepin, (2) Isanti, (3) Chisago, (4) Clay, (5) Anoka, (6) Sherburne, (7) Washington, (8) Otter Tail, (9) Dakota, (10) Mille Lacs.

In Hennepin, Isanti, Chisago, and surrounding counties the acreage is not increasing very rapidly because the land is well occupied and potatoes have been grown here for a long time. In some of the more outlying counties this is not the case and we find the acreage increasing rapidly. This is shown in the following statement which gives the percentage of increase in acreage for 1910 as compared with 1900 for a few of the most important counties:

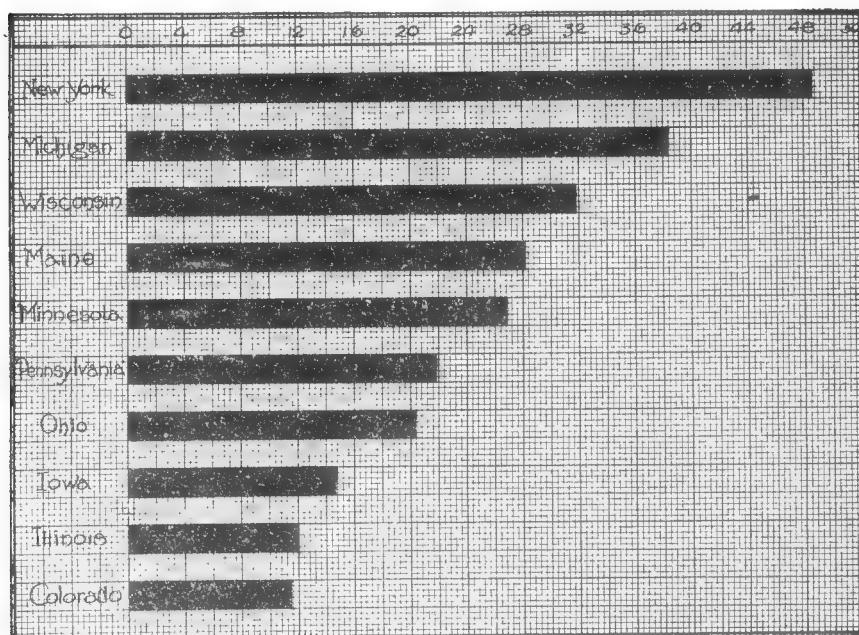
	Per cent
Clay County	455
Sherburne County	254
Polk County	136
Todd County	109
Hennepin County	83
Anoka County	58
Isanti County	26
Chisago County	17

This indicates that any considerable increase in potato acreage in Minnesota may be looked for in counties outside of the older potato-growing section.



Potato Production in Minnesota, 1909. (One dot represents 50,000 bushels)

Since the leading potato states of the United States are in the North, while the southern states do not produce enough for their own use, the northern states find the market for their surplus potatoes in the states lying to the south. The important potato-growing states of Maine, New York, and Michigan supply the Middle Atlantic States, Central States, and Southern States; Wisconsin ships largely to Chicago. Minnesota is shut off from the East by these states and sends its potatoes southward to Iowa, Missouri, and other states in the Mississippi Valley, as well as southwestward to Nebraska and Kansas. Large quantities of seed potatoes are also shipped to the southern states.



Potato Production of the Ten Leading States in Millions of Bushels, 1909

In any extensive marketing of potatoes there are always middlemen concerned in the transaction. The only place where we find no middlemen is where the producer deals directly with the consumer. This is the simplest form of marketing but obviously it can not be carried on very extensively in the case of potatoes. A farmer living near enough to a large city may sell his potatoes directly to consumers in the city, and this may also take place to some extent in towns throughout the State. As production exceeds local consumption, the farmer must find a broader market than that offered by local consumers. Municipal markets in the larger cities may

bring about some direct selling, but as a rule the farmer has neither the time nor inclination to wait for the consumer, and sells to a dealer. When the farmer sells to a dealer, a middleman is brought into the transaction. There is a good example of employing one middleman where the farmer sells his potatoes to a local merchant who in turn sells to consumers. In some instances the farmer may ship his potatoes to a merchant in some other locality or state, adding transportation costs.

The methods enumerated represent only the simplest way of marketing. In the more complex methods which are more extensive than the other form there may be two, three, four, or even more middlemen standing between the farmer and the consumer. If the farmer ships his potatoes to a wholesaler or sells them at the local wholesale dealer's warehouse and the wholesaler sells to a retailer, there are two middlemen. Or it may happen that the farmer ships them to a commission man who sells the potatoes to the retailer. If this commission man sells to a wholesaler who sells to the retailer, there are three middlemen. The same is true where the farmer sells to a local dealer or merchant who ships through a commission man to a retailer. In this case, if a wholesaler steps in between the commission man and the retailer, there are four middlemen. A commodity that must pass through several hands before it reaches the ultimate consumer must necessarily show a wide spread between producer's and consumer's price. Each middleman takes some part in the transaction, such as giving his time, the use of his money, the assumption of risk, and for doing this the dealer takes his return from the potatoes, each added dealer thus increasing the price. Too many middlemen of one class may cause duplication of work and needless expense, but on the whole these middlemen are necessary in the present organization of the business.

WHEN COÖPERATION IS NEEDED

It is principally the purpose of a coöperative potato-marketing association either to furnish a local warehouse where none exists, or to cut down the expense of handling at local points and save to the farmers the profits that otherwise accrue to other local marketing agencies. A coöperative association does not necessarily diminish the number of middlemen. In fact, if the farmers have been in the custom of shipping their own crops individually without recourse to a local buyer, the formation of a shipping or warehouse association really has the effect of adding one more middleman, but increases the efficiency of marketing through collective shipping and through an improvement and standardization of product. More commonly such an association merely replaces other local marketing agencies. There is then the possibility of saving by a careful selection

of markets, and sometimes by a more direct shipment to dealers who sell direct to the retail trade, thus eliminating one or more middlemen. The ideal system of course is to have both the producer and consumer organized so that the one can deal directly with the other. At present we have no widespread movement of this character, and it is doubtful if this method will ever become very popular because of the many obstacles which stand in the way of its development.

In Minnesota the methods of marketing potatoes vary somewhat with the locality. In the immediate vicinity of the Twin Cities a considerable amount of potatoes is hauled to the cities and sold direct to retailers by the farmers themselves. In the leading potato-producing section, which is north of the Twin Cities, each shipping point usually has several warehouses owned by Twin City dealers or by local dealers. This section has been in the potato business for a long time and the marketing end is well established. In the other important potato region, including Clay County and vicinity, potato-growing on a commercial scale is newer, the district is farther away from the cities, and there are not so many local warehouses. In the rest of the State, as a rule, only enough potatoes are grown to supply local needs. The storekeepers are usually the ones who handle the potato business in these places, selling potatoes to local customers, and occasionally shipping out such small surpluses as may accumulate. The statement is often made that no coöperative enterprise can be a success unless it springs from some definite need for such an organization, and the question naturally arises, What need is there of coöperative marketing of potatoes in Minnesota under the existing conditions? There are two conditions which create a real demand for better marketing facilities and as the result of which there ought to be a realization of the need for such an improvement. These two conditions are, first, where there is no regular local market, and, second, where the local market is unsatisfactory. This of course refers only to the localities where enough potatoes are produced to make shipping worth while.

The first condition refers to potato-producing communities that have to depend on local merchants or others not regularly in the potato business to buy up their potatoes. A man not regularly in the business is not prepared to handle the potatoes properly, and is usually only willing to buy them at such times as he finds convenient. There may be enough potatoes grown in the locality to make shipping profitable, or conditions may be such that potato-growing would be profitable if there were a dependable way of disposing of the crops. Many farmers have noticed the high price paid in years of scarcity and have resolved to grow some for market; then perhaps the next year proved to be one of high yield over the country, and as a result the farmer finds that there is no market

for his surplus crop. The merchant who was willing to buy when there was a good demand for potatoes now does not wish to bother with them because it is difficult for him to find a market for the few potatoes he would handle. If the farmer were able to dispose of his large crop he would at least get something in return, the high yield helping to counteract the low price.

Under the second condition where there is a need for better marketing, there may be a local dealer or a city dealer owning a warehouse at the shipping point but who gives unsatisfactory service. If this dealer has no competition it is not to be expected that he is going to pay the highest market price for potatoes. Often the farmer does not know how much he ought to receive for his potatoes. The man who does the buying can hardly be held to blame for such conditions; everyone is in business for what there is in it, the potato dealer as well as the farmer. Take, for example, the farmer who desires to buy more land; he will not pay more for this land than he is compelled to in order to secure it, or when people trade at stores they always try to get as much for their money as possible. It is the same way with the dealer, if he can get potatoes for thirty-five cents, he is not going to pay forty cents. He is also apt to be much more careful to reject the potatoes of poorer quality when there is no competition. A dealer of this kind will try to do business in such a way that it will not become apparent that he is making too much on the transaction. He has to be careful not to stir up antagonism for fear he will invite competition either in the form of coöperative associations or from other dealers who may be induced to come in.

It is under circumstances such as these that the farmer is most likely to see the need of coöperative marketing and feel inclined to take up this kind of coöperation. If an enterprise of this nature is started in a place where the market is well handled by independent buyers, it is a much more difficult proposition to induce the farmers to take hold and to withstand competition. In places where there are several independent buyers who have been there for some time, much more severe competition is to be expected than where there are only one or two buyers, none of whom has been on the ground very long.

COÖPERATIVE POTATO MARKETING IN THE EAST

There are some organizations in the East formed for coöperative marketing of potatoes and other produce, which have clearly demonstrated that the farmers can get together and make such an enterprise a success. The Eastern Shore of Virginia Produce Exchange with general offices at Olney, Virginia; the Monmouth County Farmers' Exchange of Freehold, New

Jersey; the Long Island Potato Exchange; the Aroostook Potato Growers' Association of Presque Isle, Maine; these are a few of the associations which have shown marked success. Some of them handle principally potatoes, others handle other produce as well. All of them, however, are comparatively large associations, and with the exception of the Long Island Association, are not confined to single shipping points.

According to its annual report, the Eastern Shore of Virginia Produce Exchange handled over 8,000 carloads of Irish potatoes during 1913, and in addition to this, many carloads of sweet potatoes, onions, cabbage, strawberries, and peas. This organization was started in the year 1900 and has had a remarkable growth since that time. The secretary-treasurer states that the organization has always been conducted on strictly up-to-date principles, and he attributes its success largely to this factor. The association has its own registered trade-marked brands and keeps up a careful inspection system in order to maintain the standards set. Each one of the forty-three loading points has an inspector, bringing the annual cost of inspection up to about \$25,000. The central office keeps in touch with the markets by means of telegraphic connection, the telegraph expense for a year amounting to from \$15,000 to \$20,000. About ninety-five per cent of the produce is sold f. o. b. loading point and it is nearly always sold promptly after loading. The general office takes care of the selling and instructs the local agent where to send the produce. On produce sold f. o. b. the association charges a commission of five per cent. In case the association employs commission men to sell for them these charge eight per cent, and return three per cent of this to the association. The large volume of business enables the association to do business on this small commission.

The annual report of the Monmouth Farmers' Exchange of Freehold, New Jersey, for 1912, shows a total business during the year of \$941,765.51, with a net profit of \$6,708.30 and a surplus of \$1,736.04 after paying a five per cent dividend and allowing for a five per cent depreciation on property. The capital stock for 1912 was reported as \$75,195. This association handled 412,202 barrels of potatoes during the year, besides a number of other vegetables, making a grand total of 2,891 carloads of produce. In 1908, when this association started, all it had was a capital of \$7,000. Its business has developed so rapidly that the total value of produce marketed in the five years 1908 to 1912 inclusive amounted to \$4,320,748. The average price paid the farmer for his potatoes was \$1.68 per barrel or sixty-one cents per bushel. In 1912 this organization transacted business in every state east of the Mississippi River with but three exceptions.

The Long Island Potato Exchange has about eight hundred members and the Aroostook Potato Growers' Association has about seven hundred

members. These two associations handle potatoes principally and have shown marked success. In Maine we find the first steps taken in any state to organize on a state-wide basis. The Bureau of Marketing and Supplies of the Maine Agricultural Department has this organization movement in charge: First, eight local exchanges were organized, and then a meeting of representatives from these associations was held. As a result the Farmers' Union of Maine was organized as a state central body to act as a guiding and directing influence for the local associations. The present plan is to get a number of states to do the same and then combine the state organizations in the same manner.

COÖPERATION IN MINNESOTA

With regard to the coöperative marketing of potatoes in Minnesota it is to be remembered that it may not be possible for any Minnesota association to duplicate these large eastern organizations, because the latter are located in rich truck districts and close to large markets; and yet the success of these associations indicates that there are great possibilities in coöperative marketing of farm produce.

Most coöperative marketing associations are of recent origin and it is difficult to predict how widespread and far-reaching this movement will be. Farmers have formed coöperative creamery associations, elevator companies, live-stock shipping associations and engaged in other forms of coöperative enterprise with considerable success, and it is not strange that they should also undertake coöperative potato-marketing even though it offers certain difficulties that are not found in other forms of coöperative endeavor. Creameries operate the year round and the output is fairly uniform; potato warehouses are run for only part of the year; the crop varies in amount; and in cold weather potatoes are somewhat difficult to handle and ship. Live-stock shipping requires no outlay for warehouse or other equipment; it is carried on the year round, and the returns from shipments come in more promptly and with less uncertainty than in the case of potatoes.

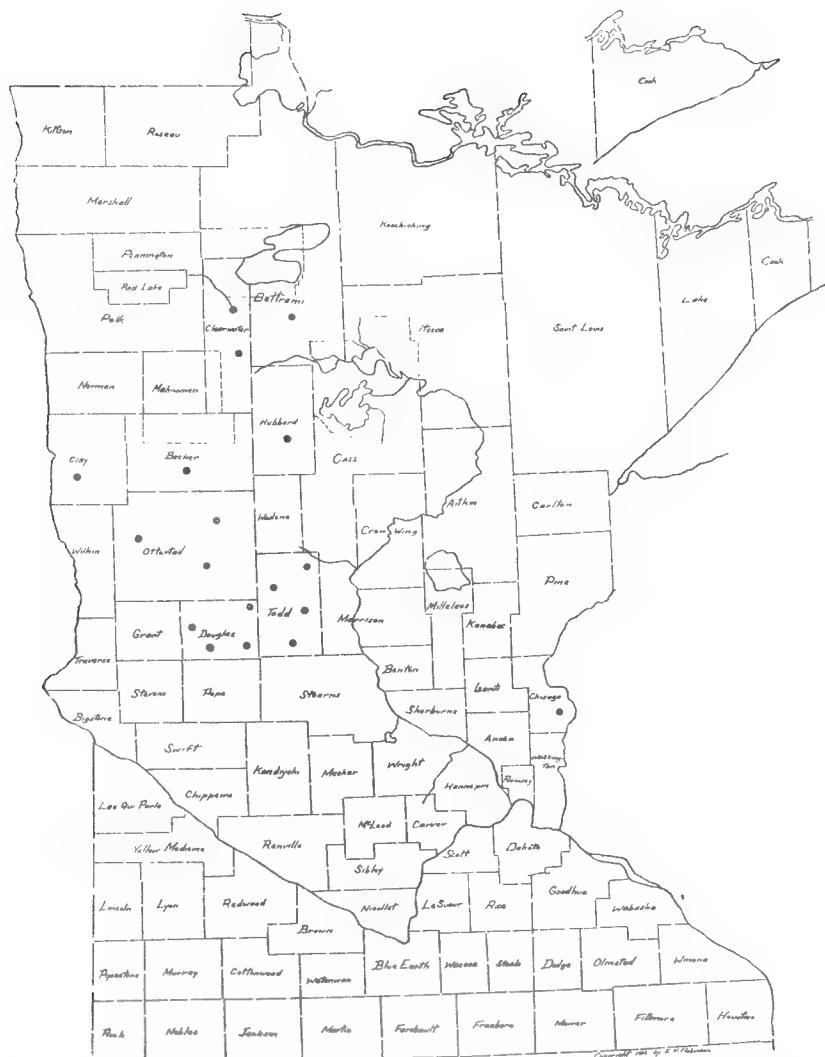
A person not closely in touch with this work would naturally suppose that potato-marketing associations would be most numerous in the leading potato sections. This is not the case in Minnesota, however, and the reason for this is that the leading section is well taken care of as far as marketing is concerned by the "line houses" owned by city dealers. This region is near the Twin Cities and there is sufficient competition to keep the market in good condition. Some coöperative warehouses were started in this section in years gone by, but they met with little success, and although there are still some warehouses owned by farmers, they are generally leased to

and operated by independent dealers. The outlying districts are not so well looked after, and as a result it is here that coöperative associations are springing up. They are found in Douglas, Otter Tail, Todd, Clay, and some of the neighboring counties, and also farther to the north in Beltrami and Clearwater counties. It is in these counties that the farmers have become dissatisfied with their potato markets and have taken steps to overcome this by forming coöperative marketing associations. In some of these places there was no regular market for potatoes; in others the market was unsatisfactory.

The Division of Agricultural Economics of the University of Minnesota is empowered by an act of the state legislature to collect information concerning coöperative enterprises in the State. In order to get data concerning coöperative potato associations, blanks were sent out through this division to all the associations in the State that could be located. No reply was received from some of these places; a few had organized but had not commenced business. Up to the time of writing (June, 1914), sixteen associations have been definitely located. This includes only the ones that have been heard from and that are known to be engaged in the potato business. Associations undoubtedly exist at other places, but no information has been elicited from them by correspondence.

Locating the sixteen associations by counties, there are four in Todd, four in Douglas, three in Otter Tail, two in Clearwater, one in Beltrami, one in Hubbard, and one in Clay. None of these is in the older potato section, such as Chisago, Isanti, or neighboring counties. Reference to the accompanying map shows two fairly well-defined groups, the one centering around Todd, Douglas, and Otter Tail counties, the other farther to the north in Clearwater and Beltrami counties.

The blanks sent out requested that they give a statement of the amount and value of potatoes bought and sold, also of vegetables, and miscellaneous receipts for the last fiscal year. A statement of the expenses for the year and a balance sheet were asked for, and if possible a monthly summary of potatoes bought and sold. In addition there were a number of general questions such as the date of organization, number of members, stock and patronage dividends, the method of buying and handling potatoes, the method of financing operations, capacity of the warehouse, amount of equipment, amount of help, method of selling, to whom sold, freight charges, price paid, varieties handled, and a request for suggestions to localities contemplating the organization of similar associations. These blanks were filled out with various degrees of completeness. In some cases practically all the information was given; in other cases only some of the more general questions were answered. In addition to the information received



Distribution of Coöoperative Potato Warehouses by Counties, Minnesota, January 1, 1914. (No reports were received from the associations shown on the map in Becker and Chisago counties)

through these blanks, several associations were visited and considerable information was secured in this way.

Summarizing information secured by means of the blanks: Fourteen associations reported on the number of members, showing a total of 1,282 members, or an average of 92 to an association; twelve associations reported a total paid-up capital of \$21,690, or an average of \$1,807. The par value of shares for fourteen associations runs as follows: eight have ten dollar shares; two, twenty dollar; two, twenty-five dollar; one, fifty dollar; and one has one hundred dollar shares. Of the sixteen associations, four were started in 1911, five in 1912, and the other seven in 1913, showing of what recent origin these associations really are. In regard to salaries paid managers it is difficult to strike an average, as most of the associations reported the total for the year, failing to state the number of months employed. The average probably lies somewhere between sixty and seventy-five dollars per month. Only seven associations gave a full report of their expenses for the year, ranging from \$61.00 to \$2,467.90, the average for the seven being \$1,009.29. The association reporting only \$61 expenses owns a warehouse where the members store their potatoes preparatory to shipment. There is no money paid out for manager's salary or other help as the farmers do all the work themselves. Omitting this association, the average expense for the other six associations is \$1,167.34. Fifteen reported on the kind of produce handled; ten handled potatoes alone; one reported mostly onions; one reported potatoes and onions; and three reported potatoes, live stock, eggs, poultry, hides, etc. The amount of potatoes sold ranged from 550 bushels¹ to 27,610 bushels for the ten associations reporting on this point. The average for the ten is 14,126 bushels. Eleven associations reported the value of potatoes sold, ranging from \$264¹ to \$10,832.61, a total of \$65,587 and an average of \$5,962.45.

The value of warehouse and equipment for nine associations ranged from \$1,200 to \$7,000, averaging \$4,074.36. The average paid-up capital for these nine associations was \$1,913, or only forty-seven per cent of the average cost of warehouse and equipment. Thirteen associations replied that the potatoes were sorted. Eight associations reported that the farmer takes back the "culls," four stated that the "seconds" or "culls" were sold by the association for feed or other purposes. Ten associations reported the method of selling as follows: one reported selling outright, two reported selling on consignment, the rest follow both methods. Nine associations name the following places to which potatoes are shipped; seven mentioned Kansas City; three, Minneapolis; two, Chicago; two, Grand Forks; one St. Louis; one, Lincoln, Nebraska; one, Tarkio, Missouri; and one, Minot, North Dakota. The freight charges vary from eleven cents to thirty cents

¹ Represents business of an association recently organized.

per hundred pounds or from six to eighteen cents per bushel. Nine associations reported on the proportion of the local output handled, as follows: one stated twenty-five per cent; four, fifty per cent; one, sixty-six per cent; one, seventy-five per cent; and two, one hundred per cent, or an average of sixty-five per cent. Ten associations reported on the leading varieties, each association naming several as follows: Early Ohios mentioned by seven, Burbanks by six, Rurals by four, Carmens by three, Rose by one, and Russets by one. In regard to the effect of the association on the local price, eight associations replied; three stated that the price ranged from three to ten cents higher, while the other five stated that the price was about the same as in neighboring towns where there are no associations.

This sums up the information obtained from the blanks sent out. Due to a number of causes, it was impossible to get such perfect results from the questionnaire as were desired. The records kept by some of the associations were not complete enough to answer all questions; some of the associations were too new to be able to give full reports; and in some cases many of the questions were overlooked or were intentionally left unanswered. After most of the reports were in, several of the associations were paid a personal visit. Each association had started under somewhat different circumstances and had had various experiences. The object of this visit was not so much to obtain an exact financial statement of their business, but rather to get at some of the experiences the associations have had, the circumstances leading up to their organization, the mistakes they have made, their plans and prospects for the future, and similar matters.

Some of the associations were started through efforts of the business men of the town; some were started through an organization already existing, as for instance the Society of Equity; still others were started by the farmers getting together without any outside help. As is to be expected, the farmers take the greatest interest in the associations which have been started by themselves, and from observations made in this study, this seems to be the most desirable way. If the farmers see the need of such an organization themselves, an association can be formed which will have a much better chance of success than if started for them by business men of the town.

Naturally, a number of mistakes have been made by these organizations which are pioneers in the field. One mistake that appears to have been especially common is that warehouses have been built before a sufficient number of shares of stock have been sold and paid for, and as a result several associations have found themselves deeply in debt when commencing business. The explanation is that such organizations are often started too late in the season and in order to be ready to handle the year's

crop the contract for the building of the warehouse is let before enough stock has been sold. It is not to be understood that the association must wait until enough shares have been sold to pay for the entire warehouse, but there ought to be enough to pay for a large proportion of the cost. It is easier to sell stock before the warehouse is built than to wait till afterwards. Before the warehouse is started the farmer may feel that it is incumbent on him to give financial assistance in order to get it started; after it is built the need of his help will be less apparent and he thinks that he will see how it is going to work out before he invests his money. Furthermore, he dislikes to put his money into an organization that is so deeply in debt. The greater the number of farmers financially interested the more farmers there will be who will patronize and support the organization. An association should have enough shares of stock sold to cover at least fifty per cent of the cost of the warehouse, before commencing to build. Some of the associations have the par value of shares so low that it is difficult to raise the money on that account; others have the same difficulty because the share value is too high. It is desirable to have the par value low enough to exclude no one and then to urge upon those able to do so to buy several shares of stock.

Another mistake that is often made is in hiring the manager. It is in some cases difficult to find an available man in the community who has the necessary qualifications, but it is often true that the board of directors of such an organization tends to look more to the cost of the man in terms of salary than to his value to the association. The man who is willing to work for the smallest salary is not necessarily the man to employ. A higher-priced man with better qualifications will very likely make a good deal more for the association than the difference in salary and will prove cheaper in the end. A man in order to be an efficient manager must first of all be honest, he must have the quality of leadership, he must enjoy the confidence of members, and he must be able to get along with everyone. He should be a man who is acquainted in the community, one who knows the local conditions, and who is acquainted with the potato business. Several association have suffered from want of these qualities in their managers.

Another common mistake is to be too anxious to show a profit. This would be a commendable trait were it not for the fact that it is usually accompanied by a desire to declare dividends. If there is a fair profit at the end of a good season the members are too ready to distribute it as dividends on paid-up stock instead of appropriating a liberal amount to a reserve fund or using it to pay off debts or to make improvements. The next year may be a poor year and as a result the association may be behind. In a business as variable as the potato business, the association must

be prepared for reverses part of the time, and in order to be prepared should have a reserve fund large enough to take care of any deficit or unusual expense. If the association is not able to meet its debts after having shown a good profit the previous year, the patrons are very apt to lose confidence in the association and its management.

There are other problems which the associations must face. Sometimes the quantity of potatoes handled is not large enough to make the business as profitable as it should be. The acreage, however, seems to be on the increase, so that this factor will soon be overcome. If the associations make a success of marketing, this will have a tendency to encourage the farmers to grow more potatoes. At least one association has had considerable trouble because of freezing in the warehouse. In this case the trouble can be remedied without a very great expense, but it serves as a warning that care must be taken to build frost-proof warehouses. Some associations have suffered no loss from deterioration of potatoes in transit; others have suffered considerably in this respect. In one case some shipments to Kansas City were delayed three or four weeks in transit, resulting in a heavy loss. In such a case the railroad company of course is held responsible, but it takes some time to get a matter of this kind adjusted and the delay causes dissatisfaction among shippers who do not understand why such things occur. In some cases returns show "dockages" for dirt or unusable potatoes. Some cases have been found where the dockages were unwarranted. A single known instance of this sort tends to create suspicion in the mind of the shipper.

Another problem arises from the failure to sort the potatoes. Some managers have a hard time getting the farmers to see the need of sorting. Many farmers think that everything should go, large or small, failing to realize that this adversely affects the price received and often means paying freight on goods for which no money is received. One manager has started the practice of putting a shipper's number on each sack, hoping thus to be able to trace "dockages" back to the original grower of the potatoes. One of the primary objects of a potato-shipping association should be to grade carefully and thus standardize the product so as to command the highest price possible and to build up a reputation for the association.

Each association must decide just what it will handle. In some cases the associations are strictly potato associations, while in other cases live stock, eggs, poultry, and other farm produce are shipped. Some of the associations have bought carloads of salt, feed, and twine, and have thus acted not only as selling organizations but also as agencies for buying goods in carload lots. Some of the associations now dealing only in potatoes are contemplating a change so as to include other products. They feel that better and more constant use would be made of the warehouse and that the

manager would be given steady employment the year round. Local conditions must determine just what is to be handled. In case coöperative work is new in the community, the association usually feels it is best to go slowly at first and not to take on new things until it is on a sure footing. When there are other forms of coöperative enterprise existing, the different organizations may come together to employ the same manager or in other ways unite to make this work more efficient.

Another question that confronts a new association is the method of buying. Some associations prefer to pay the farmers cash for their potatoes when they are delivered at the warehouse, while others do not pay the farmers until the returns from the shipment are received. There are things to be said on both sides and this is another case where local conditions play an important part. If the farmers are prosperous and willing to wait for the returns, it may cause no dissatisfaction if they are not paid cash. In some places the farmers like to get the money upon delivery of the potatoes and are dissatisfied if they do not get it. Where there is active competition from an independent buyer, the association often finds it has to pay cash in order to get its share of the business. Paying cash necessitates borrowing money because an association does not usually have sufficient working capital to finance such operations. The associations usually borrow their money at a local bank. When the farmer has to wait for returns, there is likely to be dissatisfaction with the final price returns, and sometimes an irritating delay in adjusting claims, mistakes, etc. Unless there is a good system of prorating the returns from shipments, injustice and dissatisfaction are the usual result. This is illustrated by the following instance: one association sent out two carloads on the same day, both consigned to the same selling agent. It happened that this agent already had an order for one car which he filled with one of the two cars at the current market price on the day of arrival; the other car he was forced to hold for a few days. Meanwhile the price went up so that this second car brought five cents more per bushel than the first. Naturally the man who had his potatoes in the first car was dissatisfied, even though he obtained full market price. No amount of arguing could convince him that someone was not getting the best of him. If these two shipments had been averaged, the man in the first car getting the same as the man in the second, both men would have been satisfied. The returns from shipments ought to be prorated at least for short periods—every week or every two weeks. Although perhaps it is the safer policy in the long run to await returns before paying patrons, the paying of cash at the time of delivery is likely to appeal to the farmer as being the most business-like and the better system of the two.

The future of such a new movement as the organization of coöpera-

tive potato associations is hard to predict. Nearly all of the managers of the existing associations seem well satisfied with the work that has been done so far and look forward to a prosperous future for their organizations. They realize that this movement is a new one and that the associations are still hampered by a lack of funds, and that they, as well as the growers, have things to learn in regard to the business of marketing. If the associations now organized continue to be successful after a few years, and show that they are able to stand the test, a number of other places in the State will be encouraged to follow their example. The present indications are that there will be a number of associations formed in the next few years. Farming methods in Minnesota are gradually changing from a grain-raising to a more diversified system, and if potato-raising can be shown to be profitable, more farmers will take up the growing of this crop. This will in turn lead to demands for better marketing facilities and to the organization of more shipping associations.

The future bears promise of bringing forth another and a larger movement along the line of coöperative potato-marketing, similar to the eastern associations described above. This is an organization on a state-wide basis, the different local associations combining to form a central or state association. The managers of several associations said that their organizations could handle the local situation but that it is difficult to find the best market and to handle the selling end efficiently. This does not mean that there is not a demand for the potatoes, but that an association with its limited output necessarily can not command such attention from the buyers or reach the markets as well as if they were organized with a central body having this part of the business in charge. Such a general association would be a federation of associations, with a manager in charge and an office force located in some convenient place. The general office could keep in telegraphic connection with the markets and possibly maintain salesmen during the shipping season, and it could direct the shipments of the local associations. A federation like this would have an output that would attract buyers where the small output of each association separately commands no attention. It could afford to pay for the services of a man experienced in potato-marketing, and it could also carry on inspection work and possibly have its own trade-marked brands. General educational work among potato-growers could also be undertaken.

HOW TO ORGANIZE AN ASSOCIATION

For communities planning on forming a local coöperative marketing association there are certain steps to be followed.² First, find out if the

² Advice and assistance and model by-laws may be obtained from the Division of Agricultural Economics, University Farm, St. Paul, Minn.

quantity of potatoes available for shipping is large enough to make organizing worth while, also taking into consideration the prospects for an increase in acreage in the future. Care should be taken to find out whether the farmers are satisfied with the existing method of handling their potatoes or if better marketing facilities are demanded. This should be taken up long enough before the marketing season to give ample time for organizing the association, selling the stock, and building the warehouse, but not so far ahead as to make things drag too much. In order to get as many as possible interested, it is well to discuss the proposition at several farmers' meetings before actually organizing. Where there are farmers' clubs these are an excellent medium for the discussion of such an undertaking. Later a general meeting should be called at which the question of organizing should be considered. If it is decided to organize, articles of incorporation and a set of by-laws must be adopted, shares of stock must be sold, and the warehouse planned. An organization agreement should be used and the farmers signing this will state the number of shares they are willing to subscribe for.

The drawing-up of the articles of incorporation and by-laws is of great importance. As local conditions enter into the consideration of various points, each point should be gone over carefully and discussed at a meeting. There are certain points of importance that will be touched on here. First, there ought to be a "one vote for each member" clause. That is, each member should have the same power in meetings. This is to keep the power from centering in one or a few of the large stockholders, and also to help keep up the interest of all the members.

Provision should be made for an adequate reserve fund. This fund will be very helpful in meeting unexpected expenses that may be incurred, thereby giving the association greater financial stability. It will obviate the necessity of levying assessments on shareholders in order to meet such expenses and deficits. Levying assessments is the surest way of killing off the interest of farmers in a coöperative association or, it may be added, of anybody in any kind of an enterprise.

The manner of dividing the profits should be provided for in the by-laws. The profits may be paid out in the form of stock dividends, patronage dividends, (i. e., according to the amount of business contributed by each patron), or a combination of the two. Where all the surplus is paid out as dividends on the shares of stock, the man who owns most of the stock gets the most profit even though it may happen that he transacted no business through the association. This method of distributing profits makes it only a stock company and not a coöperative organization. On the other hand, if all surplus is paid out as a patronage dividend the biggest profit may go to a man who has furnished very little of the necessary capital, and one who has furnished a good deal of capital may get

little or nothing simply because he does not do any business with the association. The combination of these two, whereby a dividend of say six or seven per cent is paid on the money invested and the remainder is divided according to patronage, is the best method. The patronage dividend may be given to members only, or it may be divided between members and non-members. The latter is the better plan, and it is a common practice to allow non-members to share at half the rate received by members. This brings more patronage and serves as an inducement to non-members to become members. It is also a good plan to pay non-members their patronage dividends not in cash, but as a credit to apply to the purchase of a share of stock, which when fully paid for, entitles the non-member to full membership. This method will increase the number of members as well as the capital of the association.

It might be well to insert a clause in the by-laws to prohibit the paying of any dividends whatsoever during the first year of operation. This would give the association a better financial start. The by-laws should also have a clause preventing the association from starting business until a fair percentage of its capital is paid in. This amount should be large enough to give the association a good financial start and prevent it from being handicapped by too large a debt.

The par value of the shares of stock should be placed at a figure which will give sufficient capital and at the same time a large membership. If too high, it may reduce both; if too low, it may increase membership but decrease capital. Twenty-five dollars is near the average and seems to give the best results. In selling stock, the country should be well canvassed and as many shares as possible sold; this means both more capital, more members, and more interest in the enterprise.

A new association should be particularly careful that in its selection of a manager it gets a man who is competent, whose honesty is beyond a doubt, and one who will do his best. A cheap man may be an expensive man in the end. In addition the association should conduct its business on strictly up-to-date principles and in a way that will insure permanency.

A potato-shipping association of this character ought to accomplish more than just the marketing of the product. It has a splendid opportunity for improving the methods of growing. Where necessary, seed potatoes and spraying materials can be secured, and coöperative work in the growing part can be undertaken. The association can secure speakers to talk to the farmers on potato culture, demonstrations can be arranged, and coöperative work between the farmers and the Experiment Stations or Department of Agriculture can be encouraged. The farmers getting together in the business of the association can exchange ideas concerning their farming methods and derive benefit in a social way by coming in contact with their neighbors.

THE MARKETING OF MINNESOTA POULTRY

By S. H. THOMPSON

PRODUCTION AND PRICES

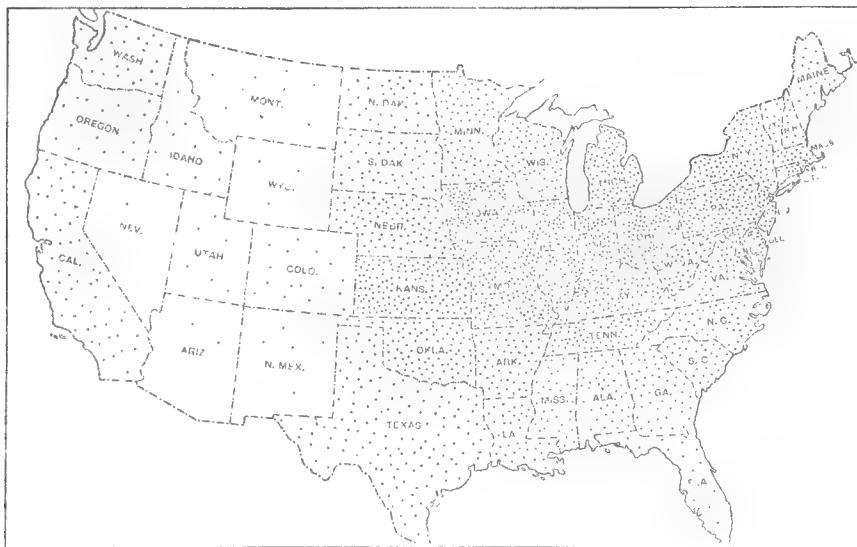
The number of poultry on farms in the United States, including chickens, turkeys, ducks, and geese, increased from 250,623,354 in 1900 to 291,372,346 in 1910, or 16.2 per cent. During the same period the total value of poultry produced increased 48 per cent. The following table indicates that the increase in number of fowls was due entirely to the increase in number of chickens and that there was a marked decrease in the number of other kinds of fowls.

TABLE I
POULTRY ON FARMS IN THE UNITED STATES

Fowls	Per cent of all farms reporting 1910	Average value per fowl 1910	Number		Per cent of increase
			1910	1900	
Chickens.....	87.7	\$0.50	280,345,133	233,566,021	20.0
Turkeys.....	13.7	1.79	3,688,708	6,594,695	44.1*
Ducks.....	7.9	.54	2,906,525	4,785,850	39.3*
Geese.....	10.4	.72	4,431,980	5,676,788	21.9*
Total.....	.....	.....	291,372,346	250,623,354	16.2

* Decrease.

In Minnesota poultry-raising has been increasing much more rapidly than in the United States at large. The number of chickens increased about one-third between the last two census years, whereas for the whole country the increase was but twenty per cent. The following table indicates that the number of geese also raised in Minnesota increased, but that the number of turkeys and ducks decreased. Chickens constitute nearly ninety-seven per cent of all poultry raised in Minnesota. The value of poultry produced in the State increased from \$2,927,717 in 1899 to \$4,714,919 in 1909, or sixty-one per cent. Minnesota ranked sixteenth among the several states in value of poultry raised in both 1899 and 1909.



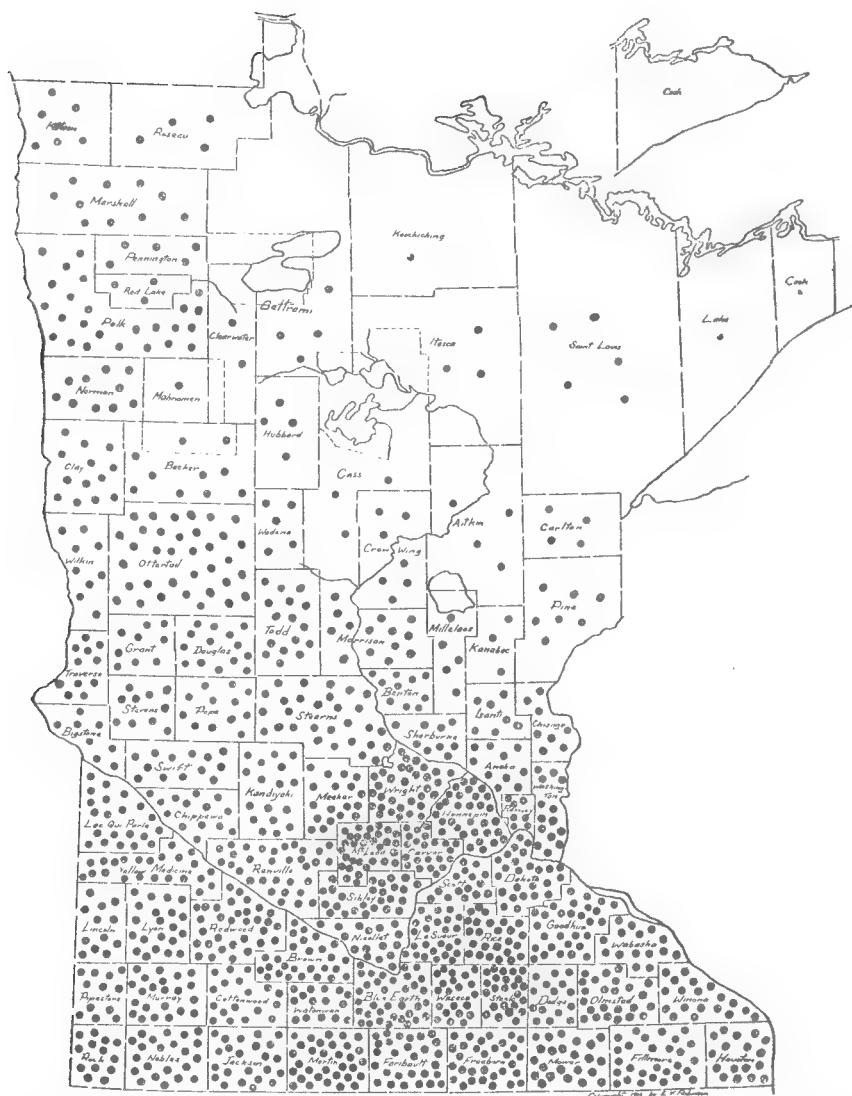
Number of Fowls on Farms in the United States by States, 1910. (Each dot represents 100,000 fowls)

The greater increases in value than in number as noted above are of course due to the rapid advance in prices since 1900. The average farm value of all fowls in the United States increased from thirty-four cents in 1900 to fifty-two cents in 1910. According to the reports of the United States Labor Bureau, based on one hundred as the average price from 1890 to 1899, the relative retail price of hens was 99.6 in 1900, 123.6 in 1905, 145.7 in 1909, and 171.8 in 1913, or an increase of 72.5 per cent from 1900 to 1913. According to a report from the same source, the

TABLE II
POULTRY ON FARMS IN MINNESOTA

Fowls	Per cent of all farms reporting 1910	Average value per fowl 1910	Number		Per cent of increase
			1910	1900	
Chickens.....	91.3	\$0.41	10,293,843	7,730,940	33.1
Turkeys.....	20.3	1.52	147,335	193,143	23.7*
Ducks.....	15.2	.59	94,269	127,635	26.1*
Geese.....	17.8	1.17	105,155	90,975	15.5
Total.....	.....	.....	10,640,602	8,142,693	30.6

* Decrease.



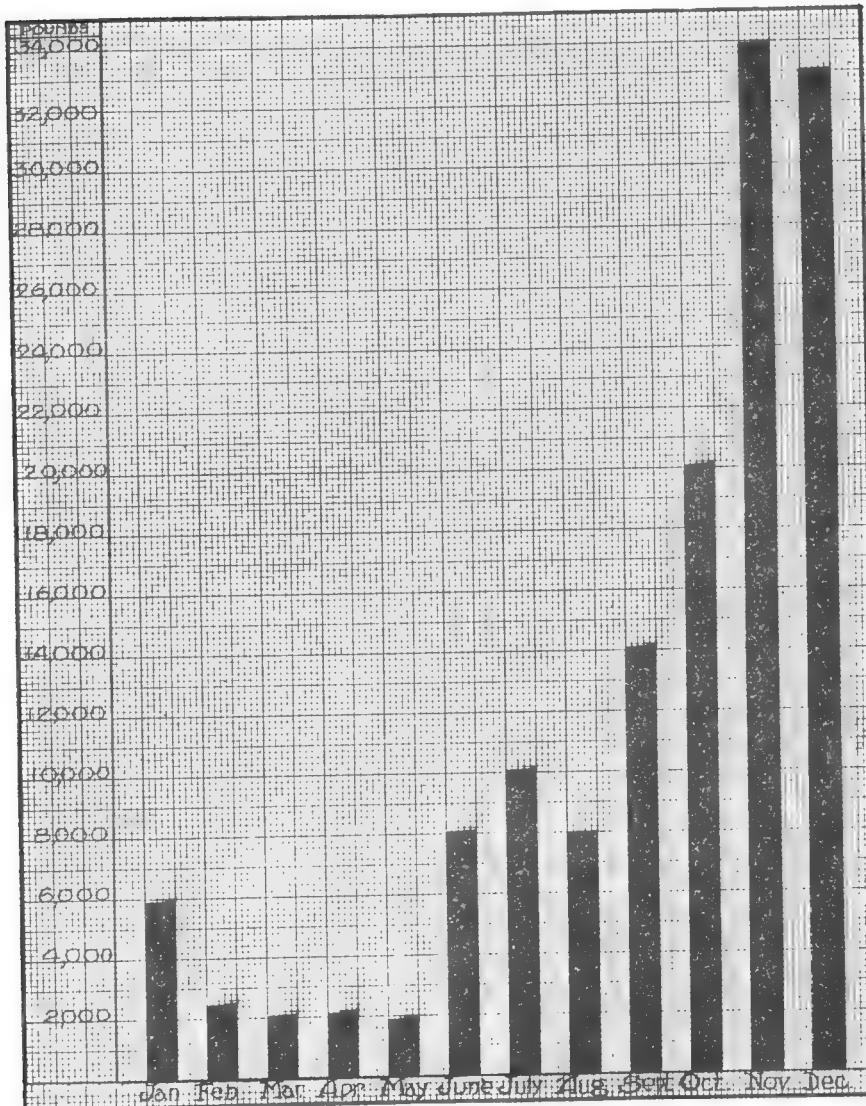
Number of Poultry Raised in Minnesota by Counties, 1909. (Each dot represents 8,000 fowls)

wholesale price on western dry-picked fowls was \$0.1619 per pound in 1909 and \$0.1824 per pound in 1913, or an increase of 12.6 per cent in five years. For the same period the relative retail price increased from 145.7 to 171.8, or 17.9 per cent. The higher retail price for poultry has just about kept pace with the rise in prices of other meats.

Ninety-one and three-tenths per cent of the farmers in Minnesota reported chickens according to figures of the Thirteenth Census. But, in Minnesota at least, poultry is a side-line on practically all farms, and to a large extent occupies the position of a by-product. While many farmers keep cost accounts on dairy and other live-stock enterprises, few pay much attention to the profits of the hundred hens kept on the average farm. A flock no larger than the proportions mentioned can pick up a large part of its living by roaming in the fields where both grain and insects may be found. A still more important consideration is the labor phase. Almost invariably the work involved in caring for the poultry is undertaken by the women and children. For these two reasons—the fact that the cost of feed is slight and the fact that poultry is cared for by unpaid labor—the cost of poultry production is very low.

Like many agricultural products, the output of market poultry is seasonal. The sales during the summer months are very small, and farmers sell the bulk of their poultry during the fall and early winter months, at which time the young fowls hatched during the previous spring are ready for market. The following statement shows the extreme variations of shipments by express of live and dressed poultry from a small town in northwestern Minnesota by months for 1912:

Month	Live Lbs.	Dressed Lbs.	Total Lbs.
January	300	50	350
February .....	.....	.....	.....
March	30	.....	30
April .....	.....	.....	.....
May	120	.....	120
June .....	.....	.....	.....
July .....	.....	.....	.....
August .....	.....	.....	.....
September	1,250	210	1,460
October	2,850	22	2,872
November	13,047	9,817	22,864
December	1,500	5,169	6,669
 Totals	19,097	15,268	34,365

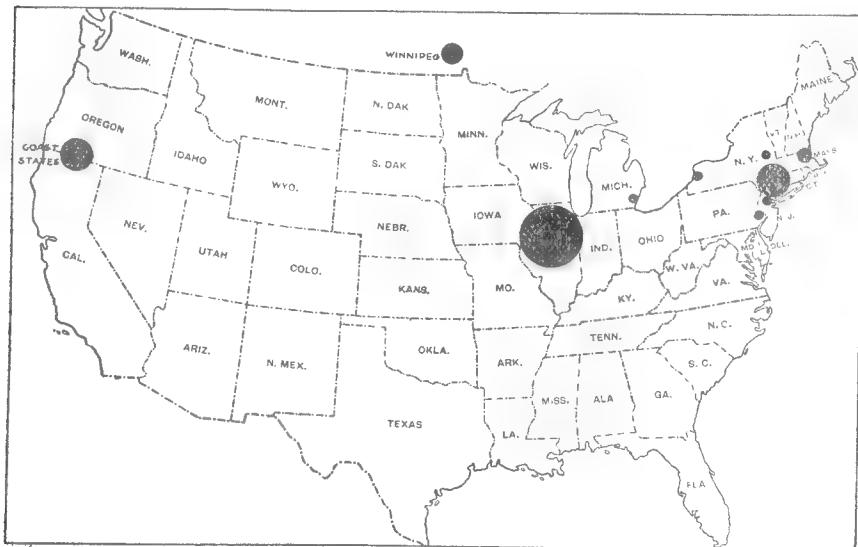


Shipments of Live and Dressed Poultry from a Country Shipping Point in Minnesota
by Months, 1913

The same variation is indicated by the following figures and accompanying diagram for shipments of live and dressed poultry by express from a town in an important poultry-raising section about fifty miles west of Minneapolis during 1913:

Month	Live Lbs.	Dressed Lbs.	Total Lbs.
January	3,074	2,922	5,996
February	1,300	928	2,228
March	1,645	375	2,020
April	2,083	.....	2,083
May	1,867	.....	1,867
June	8,023	.....	8,023
July	10,722	.....	10,722
August	7,522	425	7,947
September	13,405	625	14,030
October	20,036	.....	20,036
November	26,138	9,805	35,943
December	27,760	7,410	35,170
 Totals	123,575	22,490	146,065

These shipments from the country are concentrated largely in the Twin Cities, and although much is put into storage for local consumption, a large part is shipped to points outside the State.



Showing Relative Importance of Principal Markets for Poultry Shipped out of Minnesota, 1913. (Figures by car lots are given in Table III)

The following table shows by months the principal primary markets to which poultry was shipped in car lots outside of Minnesota in 1913. The 331 carloads shown in the table account for at least 75 per cent of all Minnesota poultry marketed outside of the State, and had an aggregate wholesale value of approximately \$1,000,000.

TABLE III
CAR-LOT SHIPMENTS OF LIVE AND DRESSED MINNESOTA POULTRY BY DESTINATIONS
AND BY MONTHS, 1913

Destination	January	February	March	April	May	June	July	August	September	October	November	December	Totals	Per cent of grand total
Chicago.....	30	19	16	4	.....	.....	1	5	14	23	23	39	174	52.6
New York City.....	1	3	.....	.....	.....	2	1	2	5	8	9	15	44	13.3
Winnipeg.....	2	2	3	.....	2	2	1	1	.....	4	1	.....	18	5.4
Detroit.....	1	.....	1	2	.....	.....	.....	.....	.....	.....	2	6	1.8	
Newark, N. J. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	5	6	1.8
Philadelphia.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	3	5	1.5
Albany.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	5	1.5
Buffalo.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2	4	1.2	
New England.....	1	.....	.....	.....	.....	.....	.....	.....	.....	2	2	6	11	3.3
Pacific Coast States.....	3	5	1	1	.....	.....	4	.....	.....	14	6	4	38	11.5
Miscellaneous & unknown.....	5	1	1	.....	.....	.....	.....	.....	.....	2	1	10	20	6.1
Totals.....	47	30	24	7	2	2	7	8	19	53	45	87	331	100.0
Per cent of grand total.....	14.2	9.0	7.3	2.1	.6	.6	2.1	2.4	5.8	16.0	13.6	26.3	100	.....

With regard to the principal markets for Minnesota poultry it will be observed from this table that a little over half is sent to Chicago. This does not mean that Chicago consumes this proportion of Minnesota's shipments, because that city is an important distributing point for eastern interior markets. Just how much is retained for final consumption in Chicago is impossible to determine. Winnipeg and the Pacific Coast States together take about one-sixth of the total shipments. A few of the westward shipments go to San Francisco, but the majority go to the far Northwest. New York City is the second largest single market. Most of the New England shipments go to Boston. The monthly distribution of shipments to points outside the State does not show quite so large a concentration in October, November, and December as do the shipments from country points within the State, because some is held in storage in the Twin Cities and Duluth before shipment to outside markets.

MARKETING AT COUNTRY POINTS

Most of the market poultry is produced at points rather remote from the places at which it is consumed. Only a small amount of poultry is sent direct to the consumer. The channels by which it leaves the hands of the producer are four in number: first, direct shipment to dealers in large cities; second, country stores; third, local butchers for local consumption; and, fourth, "cash buyers."

The poultry marketed by direct shipment to city dealers is sent by express either to wholesalers who buy outright or on commission, or to retailers who buy outright. By far the larger amount goes first to wholesalers or commission men. The express rates are the same on both live and dressed birds. Whether these are shipped alive or dressed depends on the time of the year and the kind of fowl. During the summer no dressed fowls are sold. During the winter months such turkeys, ducks, and geese as are sold, usually are dressed, and some of the chickens sold at that period are also dressed. Live poultry is shipped in coops. The average weight of a coop is about forty-five pounds. About ninety pounds of live birds may be transported in such a container. These coops are loaned by Twin City or Duluth dealers, express prepaid at ten cents each to Minnesota points, and this amount is deducted from the proceeds of the sales.

At present not nearly so much poultry is marketed through the country store as formerly. When it is still so marketed the country merchants pay for market poultry in cash or trade, often at the option of the farmer. The cash price is usually about one cent less than the trade price, and little attention is paid to grading by the country storekeepers. They in turn sell to wholesalers in large cities or to cash buyers in their own towns. Those merchants who ship to large cities send most of their poultry to Minneapolis and St. Paul. Chicago also receives a considerable amount direct from Minnesota points. The price paid to the Minnesota farmer averages about three cents below the wholesale price of live poultry in the Twin Cities.

The third method of disposing of poultry in the rural districts is by sale to the local meat retailers or butchers. Although such buyers handle large quantities in some towns, most of them buy no more than enough to satisfy their own demands for local consumption.

A fourth outlet for market poultry in the country is a rather specialized class of dealers who buy for cash exclusively and for the purpose of this paper are termed "cash buyers." These dealers may be roughly classified as follows:

1. Individual buyers, each operating a single packing house.

2. Firms operating chains of six to a dozen or more houses who specialize in the purchase of poultry and other farm produce.
3. Resident agents of firms in distant cities buying on commission or salary.
4. Traveling buyers, acting independently or in the employ of a firm in another city, who contract for delivery at a certain time.

The first three classes are the most numerous and handle the bulk of the poultry sold at country points.

Dressing and feeding are two very important features of the poultry business. Nearly all cash buyers have facilities for dressing either at their own plants or at some point where they concentrate their purchases. Likewise many of them have provision for feeding of fowls, and all use considerable care in grading and packing. On live poultry with full crops it is customary in many places to subtract five per cent of the gross weight of birds.

In the dressing of fowls there is a loss of ten to twelve per cent. This percentage is inversely proportional to the size of the bird and consists of blood and feathers. This is offset to some extent by proceeds from the sale of feathers and ten per cent is usually considered as covering shrinkage in dressing. Turkey and chicken feathers do not bring as much as those of ducks and geese. Birds are either dry-picked or scalded. The eastern markets demand dry-picked birds and the fancier grades are always dressed in this manner. However, pin feathers may be more easily and more thoroughly removed by scalding and thus fowls that would grade No. 2 if dry-picked, on account of torn skins, are often enabled to grade No. 1 when scalded. When scalded fowls are to be placed in cold storage, it is highly important that the heads be not dipped as the appearance when kept for some time following this treatment is that of a diseased fowl and increases the difficulty of sale. The only kind of poultry that is scalded to any extent is chickens. To secure uniformity and care in dressing most buyers prefer to dress the chickens at their own plants.

Live poultry and dressed poultry are each divided into certain fairly well-recognized market classes. Each class is further divided into three grades known as "No. 1," "No. 2," and "culls." The details in these market classifications and quotations are variable. Chickens are divided into "springs," "fowls," and "cocks." The usual classes of "springs" with their respective weights are as follows:

- "Peepers," $1\frac{1}{4}$ lbs. and under.
- "Broilers," $1\frac{1}{4}$ lbs. to $2\frac{1}{2}$ lbs.
- "Fryers," $2\frac{1}{2}$ lbs. to $3\frac{1}{2}$ lbs.
- "Roasters," $3\frac{1}{2}$ lbs. and over.

"Springs" include all birds raised in a given year until after January 1 of the following year. After January 1 they are divided into two classes, viz., fowls and cocks. Fowls include hens under three pounds, hens three to four pounds, and hens four pounds and over. Cocks include males of all weights. Live ducks, geese, and turkeys are not so finely divided, and are separated to a large extent on the basis of age. Young birds of good weights find a more ready sale than old ones. Market divisions of dressed poultry are very numerous, and some packers have as many as a hundred lots, based on the manner of feeding, condition of birds, uniformity in size and weight, and manner of dressing. Discriminating markets encourage this fine subdivision and one of the severe criticisms of Minnesota dressed poultry has been the lack of care in grading and packing, although this is now being very efficiently done by many firms, especially the larger ones. The better grades are packed in boxes lined with parchment paper. Sometimes each bird is packed in a separate carton or wrapped in parchment paper. The poorer grades are packed in barrels containing 150 to 200 pounds, and the barrels themselves weigh about 22 pounds apiece. The barrels are lined with parchment paper, and after being filled, a piece of burlap is placed over the top. This is the usual way that country merchants pack all their shipments, irrespective of quality. The birds packed in boxes lined with parchment paper are carefully graded as to quality, color, and size and are packed twelve in a box. The different sizes of fowls cause a variation in the weights of the boxes. The barrel is a poor container on account of its unwieldiness and the danger of birds becoming misshapen in so large a package. Its one redeeming feature is its economy as compared with the box.

Nearly all cash buyers grade rather closely. In many cases where only a few birds of No. 2 grade are found with a preponderance of No. 1 fowls, there is a tendency to put all in as No. 1. Such instances require a slight adjustment of price from time to time to compensate for the cumulative losses incurred. Grading No. 2 stock as No. 1 hampers the improvement of market poultry by not placing a premium on good fowls.

Feeding is employed for the following purposes: first, to maintain birds; second, to fatten thoroughly, thereby making the meat tender and juicy; and, third, to bleach. The first is undertaken to prevent loss in car-lot shipments of live poultry to distant cities, and to prevent shrinkage in birds temporarily held for slaughter. In regard to the second it may be said that a great deal of poultry comes to market in a half-fat condition. By a couple of weeks of feeding there is a profit made on the feed consumed and a further profit on the increase in price for a higher grade. The improvement of the grade is perhaps the greatest gain to be obtained from feeding. Of not the least importance is the third purpose—the bleaching of the fowl—brought about by milk feeding.

The purchases of country merchants are frequently turned over to local "cash buyers" at one-fourth to one-half cent above the price paid by the merchant to the producer. Most of the sales of poultry by individual "cash buyers" in business on their own account and by buyers representing a group of houses sell outright either f. o. b. their own station, or f. o. b. destination, though some maintain representatives in large cities. These cash buyers ship largely to Minneapolis, St. Paul, and Duluth, but many ship direct to Chicago and eastern cities, and a few to Seattle and Winnipeg.

Of the methods employed in disposing of poultry at country points, the channel of the country store is least efficient. General merchants have not the facilities for handling live poultry or for packing dressed birds, and many of them would prefer not to bother with it. The local butcher is in a position to handle effectively only a limited amount—enough for his own trade. Shipment to city dealers or sale to local cash buyers appear to be the best outlets. As a general proposition it may be assumed that the sooner poultry is properly dressed, chilled, packed, and stored after leaving the hands of the producer, the better will be the product. It would seem, then, that decentralized plants for dressing and freezing would be very desirable in the marketing scheme. Cash buyers at country points who are provided with such conveniences have an important advantage. Only a few of them, however, have equipment for dressing and freezing and not all of these do it except in the fall and winter.

Those who never dress at their own plants and those who do so only periodically must transport their birds some distance before disposing of them. Thus they are placed on a par with the producer who markets by direct shipment. The disadvantage of shipping live birds is the loss in shrinkage, which amounts to three per cent or more depending on the delay in reaching market. Besides the actual loss in weight the quality is impaired. It is also less trouble for the farmer to drive to the house of the cash buyer in his own town, weigh his poultry, and get his check immediately.

THE WHOLESALE TRADE

The wholesale receivers of poultry in the Twin Cities, into whose hands shipments from the country are usually first delivered, are of two general classes, as follows:

1. Those who buy outright, deducting only the transportation charges, when making returns to country shippers.
2. Those who sell to a third party on a commission basis, charging for their services ten per cent of the gross selling price. The commission dealers subtract all charges including commission from the amount received for the goods consigned and remit the balance to the consignor.

No sharp line can be drawn between these two classes of dealers, because oftentimes a house that is handling country shipments on commission will be buying poultry from another wholesaler on the street. Most of them have facilities for killing and dressing at their own plants. Sorting and repacking is an important function of wholesale dealers. Degree of fatness, size, color, and freedom from blemishes are points to be considered in these operations. Some feeding is done by wholesalers but in most cases only for maintenance.

Early in the fall—September first—the different houses commence to send out advertising matter and price lists to several thousand addresses, including farmers, merchants, and cash buyers. It is the habit of dealers who buy outright to guarantee a certain price for about a week ahead of time. Prices on commission are subject to change without notice. As the season advances and the holiday period approaches, statements of market conditions are rendered more often but to a limited list of shippers. To active shippers price quotations are sent very frequently.

The Minneapolis dealers have an organization called the Minneapolis Produce Exchange. The traders meet here every forenoon at ten o'clock and make their bids and offers. Although comparatively little is actually sold on the exchange, prices based on sales are published daily in the so-called "Daily Market Reporter" not as official prices or quotations but solely for the purpose of keeping buyers and sellers informed.

Wholesalers receiving poultry dispose of their birds as follows:

1. By direct sale to retailers.
2. By sale to other wholesalers and jobbers usually in distant cities.
3. By sale to large consumers, such as hotels, restaurants, etc.
4. By placing in cold storage for future sale, and then selling in one of the first three ways.

About ninety per cent of the dealers have their own vehicles for delivery to retailers. Those who sell to wholesalers in distant cities usually ship only in car lots. The minimum weight on car-lot shipments is 20,000 pounds. These go forward in refrigerator cars which are carefully iced. The rate on dressed poultry in car lots is about twenty-five per cent higher than that on live poultry. The greater part of the shipments to points outside the State consists of dressed poultry.

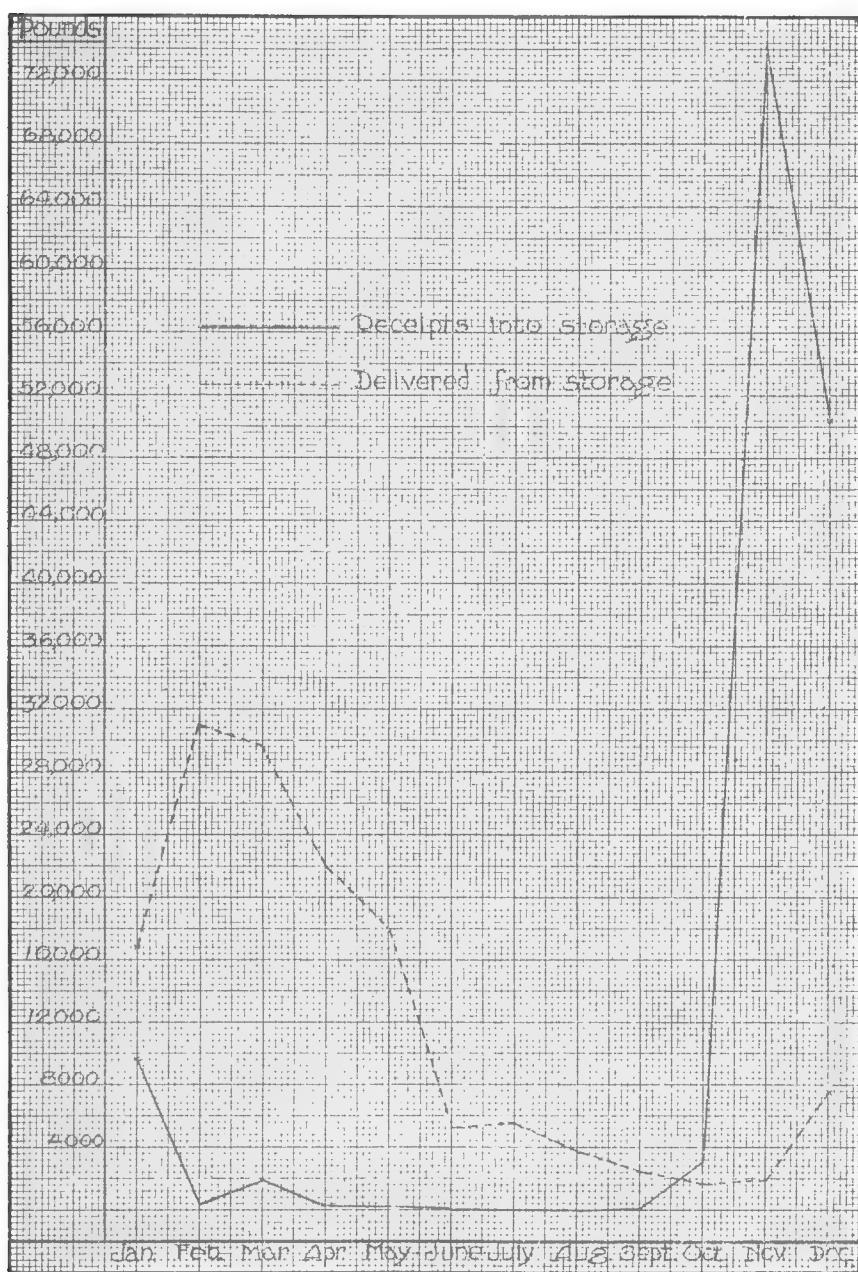
COLD STORAGE

About two thirds of Minnesota poultry is brought to market during October, November, and December. The demand for consumption at that period falls far short of the supply, and to prevent loss of the surplus it is placed in storage. Then during the time when but little fresh poultry is coming to market the supply in storage is delivered for consumption.

Facilities for preservation of poultry during the period of plentiful supply and while in transit are of the highest economic importance. Sudden and marked variations in the price are largely prevented by the use of cold storage, and the supply is distributed to conform to the demand. According to Bulletin 93 of the Bureau of Statistics of the United States Department of Agriculture, the average storage period for poultry does not exceed three months. This is undoubtedly contrary to general belief. The public has thought that cold storage products are kept for years and have been inclined to discredit statements of warehousemen on this point. The idea, held by consumers, that stored poultry is inimical to public health is born of prejudice and is not well founded. Circular No. 64 of the Bureau of Chemistry, United States Department of Agriculture, by Dr. M. E. Pennington (page 31) makes the following statement: "Poultry, even in the best condition, is not improved by being kept frozen for any length of time. About the sixth month of carrying, a careful observer, judging by the taste alone, can tell the difference between frozen poultry and that which is freshly killed. Up to nine months, however, this difference is so slight that it is of scarcely more than scientific interest."

According to Bulletin 93, previously referred to, 75.7 per cent of the poultry stored in the United States is delivered from storage in four months and more than ninety-eight per cent is delivered from storage before nine months have elapsed, and placed on the market before much deterioration in storage has taken place. It must be admitted that people at times have been ill after partaking of storage poultry. Let it be understood that this should not be blamed on cold storage itself. Poultry that has been held for sale until partially decomposed and then placed in storage is no better when it comes out than when it went into storage. Poultry for storage should be dry-picked and dry-chilled. Scalding, followed by cooling in cold water, fosters deterioration. Another important thing to be borne in mind in connection with storage poultry is the thawing after removal from storage. A very good place for doing this is in the dry air of an ordinary refrigerator, and it does not require over twenty-four hours. Storage poultry once thawed never keeps so well when refrozen. The time intervening between removal from the freezer and use of the cold storage bird should be as short as possible for best results. It has been charged by many that it is criminal to place poultry in storage without removing the entrails. Scientific investigations on this point show that drawn fowls decay much more rapidly than undrawn birds. The putrefactive bacteria seem to get a foothold very quickly and increase more rapidly after the fowl is drawn than when undrawn.

The rates for storage vary from one-fourth to one-half cent for the first month and from one-eighth to one-fourth cent for each succeeding month. Firms who store any great amount of poultry are given special



Receipts and Deliveries of Poultry by Months for a Twin City Cold Storage
Warehouse, 1913

rates. Three-eighths of a cent per pound for the first month and one-fourth of a cent per month for each succeeding month is common. Over fifty per cent of the poultry stored goes into cold storage during November, December, and January. About seventy per cent of the amount stored is delivered from storage in November and December during the holiday season and in January and February. It will be observed that the storage year does not coincide with the calendar year. Probably seventy-five per cent of the total receipts of market poultry is stored for a short time at least. The accompanying figure shows the receipts and deliveries for a Twin City cold storage company.

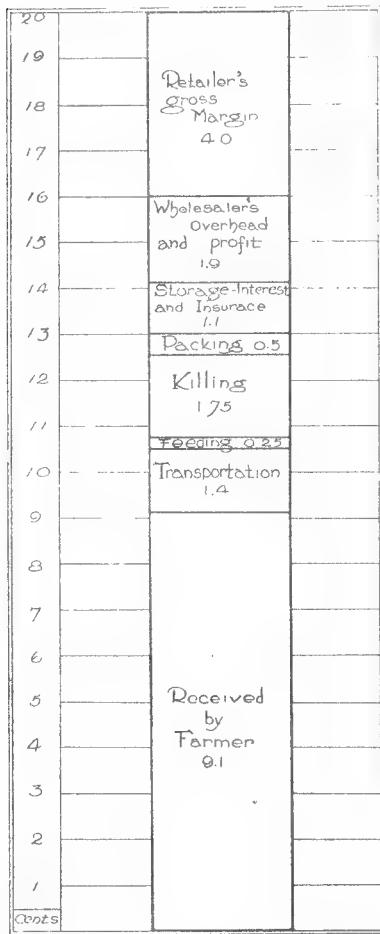


Diagram Showing Cost of Marketing Minnesota Poultry in Minneapolis under Conditions Described in Text

THE RETAIL TRADE

The retail trade at country points draws practically all of its supply direct from farmers. The retail trade of the Twin Cities draws nearly all of its supply from wholesalers. Retailers have satisfactory "coolers" for temporary preservation of small lots at their own establishments. Some buy more than is needed for immediate use during the fall and place it in a cold storage plant until needed. Some retailers cater only to the most select trade, and others deal with all classes. Nearly all of them deliver to consumers and the average cost of delivery as figured by them is ten per cent of the retail price. The demand for poultry is seasonal both as to yearly and weekly cycles. About two thirds of the sales by retailers take place on Saturdays. Under present conditions poultry to a very large extent must be considered a luxury, and is used most plentifully during holiday seasons and Sundays.

ANALYSIS OF MARKETING COST

Although definite and accurate data on the cost of marketing of poultry are rather difficult to secure, an estimate is presented below which indicates the various elements of cost incurred from the time a chicken is sold by the farmer to the time that it reaches the Twin City consumer. It is assumed that the bird is shipped by express direct to a Twin City buyer and that after killing and packing it goes into storage for three months. Although this is only one method of sale, the figures indicate approximately the main elements of expense of marketing chickens whatever channels of trade are selected.

TABLE IV
ANALYSIS OF COST OF MARKETING CHICKENS

	Cents per pound
Net to producer.....	9.1
Transportation	1.4
Cost to wholesaler.....	10.5
Feeding	0.25
Killing:	
Loss in shrinkage.....	1.0
Labor and expense.....	0.75
Packing	0.5
Storage, interest, and insurance.....	1.1
Wholesaler's gross margin (includes overhead and delivery costs and profits).....	1.9
Price to retailer.....	16.0
Retailer's gross margin.....	4.0
Price to consumer.....	20.0

From this analysis it will be seen that when the consumer pays twenty cents a pound, the farmer receives 9.1 cents, or about 45.5 per cent. The margins of course vary; for example, the retailer may be selling for eighteen or nineteen cents a pound, thus cutting down the margin that he receives; or the wholesaler's gross profit may be smaller than that indicated, especially during a period of declining prices.

The total spread between producer's and consumer's price in this analysis is 10.9 cents. Of this total spread, transportation costs account for 12.8 per cent; killing (including shrinkage), 16.1 per cent; storage, interest, and insurance, 10.1 per cent; wholesaler's gross margin (out of which must be paid his overhead and delivery expenses), 17.4 per cent; and retailer's gross margin, 36.7 per cent. The retail store is the most expensive single step in the marketing process, and yet the margin taken at this step is only twenty per cent of final retail price.

MILK DISTRIBUTION IN MINNEAPOLIS AND ST. PAUL¹

By W. L. CAVERT

In any discussion of the problem of milk distribution it is well to bear in mind that the purity and cleanliness of the milk supply have such an intimate relation to infant mortality and the public health that the efficiency of any system is to be measured more by the effectiveness with which it safeguards the supply from dirt and the introduction of harmful bacteria, than by the financial economies of the system. And any system or method that contributes both to cleanliness of the milk supply and to economy in its distribution is to be doubly commended.

It may be said in general that cleanliness in handling and purity of supply are strictly opposed to low cost of distribution, except in so far as a large volume of business may enable certain companies to have a well-equipped plant and trained men to operate it at a comparatively small expense per quart. But it is also true that lack of financial ability to provide suitable equipment for carrying on the business is not the only factor that stands in the way of a more hygienic milk supply. The fact that dairymen consume without question the milk from their own unsanitary dairies suggests that many of the sins of the dairyman are to be charged to ignorance rather than to malicious intent. It is also worth while to point out that the dairyman's ignorance is equaled by that of a large proportion of his customers in their care of the product after it reaches their hands.

In general, two different systems of transferring milk and cream from the producer to the consumer are in use in Minneapolis and St. Paul. These may be called the direct and the indirect methods. By the direct method is meant the one in which near-by farmers deliver the products of their dairies directly to city consumers from their own wagons. By the indirect method is meant the system whereby the farmer sells his milk or cream to a wholesale dealer, who usually clarifies, pasteurizes, and bottles it, and then distributes it to stores, restaurants, or the ultimate consumer. While on paper the above classification may appear to be very definite and clear-cut, it does not follow that in practice there is an equally well-defined line of demarcation between the two systems, for a majority of the local

¹ The data for this paper were collected in April, 1913.

dairymen who distribute the products of their own dairies to the city trade from their own wagons, sell a portion of their product to stores and restaurants. Again, these dairymen are themselves frequently acting in the capacity of middlemen, when they increase the size of their business by buying the milk or cream of neighbors, who do not keep sufficiently large dairy herds to make it economical for them to run retail routes of their own. Again, some of the local dairymen, instead of making the family trade the major part of their business, have as customers a number of stores or restaurants to whom they make daily deliveries. With the understanding that it is frequently impossible to draw a clear-cut line between the direct and indirect systems, the principal features of each will be described.

THE DIRECT METHOD

Dairymen who deal directly with the consumer may be divided into two classes according to the conditions under which they carry on their business: first, those who are within or so close to the city that it is impossible to secure land economically for pasture and the raising of winter feed; second, those who are so far removed from the city as to be able to furnish summer pasture and to raise a part of the winter feed. Most of the dairy farms near the Twin Cities raise all or a considerable part of their coarse fodder, but buy practically all of their grain.

In general, it may be said that the conditions surrounding the production and distribution of milk under the direct system are far from satisfactory from the sanitary standpoint. A fairly well-lighted and ventilated stable is the striking exception rather than the rule. The milk house ordinarily lacks nearly every one of the articles of equipment that are essential for the sanitary handling of market milk. An inventory of the equipment was taken on eighteen of these farms located near Minneapolis and St. Paul.² A steam boiler was found on five farms, and a bottling machine on three. Only two of the eighteen used cream separators for skimming the milk used for the cream supply, the usual custom being to raise the cream by setting the milk in ice water.

Of the total amount of milk sold by these dairymen, approximately twenty-eight per cent of the supply was bottled.³ More or less bottling was done on fifteen of the eighteen farms. The general objection raised to bottling was the labor required when it was done by hand. The general custom was to bottle as much as was required for the store trade and for such of the family trade as expressed a preference for bottled milk.

² This investigation was made during the year 1912-1913; doubtless some improvements have been made since that time.

³ In December, 1913, St. Paul adopted an ordinance requiring that all milk retailed to family trade should be bottled at the farm, or creamery of distributing agency.

In determining the expense involved in distributing milk by the direct method, a number of difficulties at once present themselves. Some of the more important ones are the following:

First, no aid can be secured from an investigation of the books of these farmer dairymen, because practically no accounts are kept. In determining costs where no accounts are kept, two methods of procedure are available. One is to outline a set of accounts and then induce a number of persons to keep accounts with adequate supervision. A cheaper, quicker, and fairly accurate method is to determine what items of expense enter into the business, to secure estimates from a large number of operators as to what their expenses and receipts have been during the preceding year, and then trust to the law of averages to correct any mistakes that the individual dairyman may have made.

Second, a dairyman who milks cows and distributes the product himself is conducting two distinct enterprises, the one having to do with the production of milk, the other with its distribution; but frequently the dairyman himself makes no distinction between the expense of production and of distribution. This overlapping of the two enterprises is well illustrated in the daily work of the driver. On these farms it is customary for the man who drives the milk wagon, whether he be proprietor or hired man, to help with the milking both morning and evening. From two to four hours per day are usually spent in this way by the driver. When the man is milking he is spending time on the production end of the enterprise, but when he is bottling milk or delivering milk to his customers, he is putting time on the distribution end of the business. If costs are to be determined, some fair system must be devised of distributing the labor cost between the two enterprises.

Third, a number of items of expense involving the depreciation of horses, wagon, and other equipment are very difficult to estimate correctly, because no figures have been kept and depreciation charges are more or less neglected by the operators.

In an attempt to determine the approximate cost of distribution by the direct-to-the-consumer method, twenty-one of these farms were visited and estimates were secured as to the inventory value of the equipment used in the distribution part of their business on April 1, 1913, the expenses of distribution, the amount of milk, cream, and skim-milk handled daily, the price received for same, the amount of milk bottled, number of cows milked, etc. Fairly satisfactory records were secured from eighteen of the twenty-one farms. The figures secured from these eighteen farms were tabulated and summarized as indicated below. It is believed that the average drawn from estimates on eighteen farms will give the approximate cost of distribution by this method, but it is recognized that the number is

not sufficiently large to allow a highly satisfactory study of the factors that make for economical distribution by this system.

For some items of expense it was found advisable to fix arbitrary standards according to the judgment of those best informed on the business, for the reason that estimates are not of very great value unless they are based on a fairly intimate knowledge of the subject concerning which an estimate is asked. The following arbitrary standards were used:

Feed, shelter, and miscellaneous cash expenses of a horse per year	\$100.00
Yearly depreciation of a horse per year, figured on the basis of a \$200 horse giving five years of service and having a value of \$50 at the end of that period.....	30.00
Yearly depreciation of a wagon figured on the basis of a first cost of \$200, and a five-year period of usefulness, with a value of \$25 at the end of five years.....	35.00
Yearly depreciation of a harness per double set, figured on the basis of a first cost of \$40, with ten per cent depreciation.....	4.00
Depreciation of a sleigh per year.....	6.00
Allowance for cost of fuel in cases where hot water for cleansing was secured by use of the kitchen stove.....	15.00
Wages per hour allowed for farm work by drivers of milk wagons .....	.16

A new milk sleigh costs \$150 or more, and the annual depreciation would be from ten to twenty per cent, but the average cash value of the sleigh on these eighteen farms was only thirty-six dollars. This low valuation was caused by the fact that in some cases the box to the wagon is placed on runners, and in others a second-hand sleigh is secured at a cost of from ten to fifty dollars and made to serve for the short season when a sleigh is needed. In the few cases where bottling machines and steam boilers were kept, ten per cent on the original cost was allowed for depreciation. In the case of bottles and cans, the amount expended during the year was allowed to offset the depreciation.

The cost of shrinkage was determined by securing the farmers' estimates as to how many quarts of milk he ordinarily secured from a five-gallon can. The cost of shrinkage was computed on the wholesale value of the milk. The following prices were arbitrarily used as the wholesale value of the milk that was lost between producer and consumer:

Wholesale price of milk per gallon during the months of October, November, December, and January.....	\$0.18
Wholesale price of milk per gallon during the months of April, May, June, July, August, September, February, and March...	.16
Wholesale price of milk per gallon during the months of April, November, December, and January.....	.72
Wholesale price of cream per gallon during the months of April, May, June, July, August, September, February, and March....	.64

The above prices are about twelve per cent higher than could have been secured at Minneapolis creameries, but there is a wholesale market available to these dairymen where they sell to restaurants or other peddlers, so the above figure may be considered approximately correct.

A summary of the conditions surrounding the distribution of milk by the direct-to-the-consumer method in the Twin Cities, may best be shown by presenting the average results secured by tabulating the estimates of investment and operating costs of the eighteen farmers.

TABLE I
AVERAGE INVESTMENT IN EQUIPMENT FOR THE DISTRIBUTION OF MILK AND CREAM ON
APRIL 1, 1913

Horses	\$458
Milk wagon	127
Sleigh	36
Harness	23
Bottles and cans.....	44
Miscellaneous	25
Total investment	\$713

TABLE II
AVERAGE EXPENSES OF DISTRIBUTING MILK FOR YEAR FROM APRIL 1, 1912, TO
APRIL 1, 1913

Wages and board of driver.....	\$721
Wages of assistant, including board furnished*.....	241
Bottles and caps.....	34
Bad debts	39
Shrinkage and breakage.....	248
Milk tickets	11
Fuel	27
Ice	56
Miscellaneous supplies	7
Repairs to wagon, sleigh, and harness.....	39
Shoeing horses	70
Feed cost, shelter, and cash sundries for an average of 3.22 horses.	322
Depreciation of horses and equipment.....	146
Interest on average investment of \$713 at 5 per cent.....	36
Total expenses per year.....	\$1,997
Value of farm work done by drivers per year at 16 cents per hour.	224
Net cost of each route per year.....	\$1,773

* Driver had an assistant for a part or all of the time. Some drivers had no helpers at any time during the year.

TABLE III
AVERAGE SIZE OF BUSINESS

	Gallons sold April 1, 1912 to April 1, 1913	Receipts April 1, 1912 to April 1, 1913	Average gallons sold daily	Average daily receipts
Whole milk.....	22,126	\$5,908	60.6	\$16.19
Cream.....	847	918	2.3	2.52
Skim-milk.....	2,176	212	6.0	.58
Total.....	25,149	\$7,038	68.9	\$19.29

A half pint of cream is ordinarily sold for the same price as a quart of milk, and among milk firms that keep cost accounts, a half pint of cream is always regarded as the equivalent of a quart of milk in figuring cost of distribution. The same system has been followed in this study. In apportioning the expenses of distribution between whole milk, cream, and skim-milk, a quart of milk has therefore been treated as the equivalent of a half pint of cream. Among milk dealers the expression "point" is used. A "point" means either a quart of milk or a half pint of cream, and the amount of business done by a retail wagon is often stated in terms of "points." It has been assumed that the expense of distributing skim-milk is in proportion to the money received from it.

TABLE IV
DISTRIBUTION OF EXPENSE BETWEEN MILK, CREAM, AND SKIM MILK

	Percentage distribution of receipts	Distribution of expenses
Milk and cream.....	97	\$1,720
Skim-milk.....	3	53
Total.....	100	\$1,773

TABLE V COST OF DISTRIBUTION PER "POINT"		
Net cost of distributing milk and cream per wagon per year.....	\$ 1,720	
Total number of "points" handled per wagon during year.....	102,056	
Cost of distribution per "point".....		\$.0169

An arithmetical average was also secured by finding the cost of distribution per point on each farm, and then taking the average of the eighteen farms. This kind of an average has the advantage of regarding each

farm as an individual experiment in the cost of distribution and so gives each farm equal weight in the average, irrespective of the amount of yearly business. When this was done the average cost of distribution per point was \$0.0185. In considering the above figures it should be remembered that twenty-one per cent of the milk on these farms was sold at wholesale to stores and restaurants. If allowance were made for the fact that milk can be delivered to stores and restaurants in wholesale quantities at a cheaper rate than to families, the actual expense of delivering to family trade would be slightly greater.

Two dairymen reported that they had no loss from shrinkage and breakage. The most frequent estimate as to shrinkage of milk dipped from cans in the street was two quarts per five-gallon can, or ten per cent loss. In the case of bottled milk, the most frequent estimate was a loss of one quart per five-gallon can, or five per cent loss.

If these two dairymen escaped this loss, it must have been because they gave a less liberal measure than their competitors, and so placed this charge on the final consumers. Only five of the eighteen dairymen reported a loss of five dollars or more per year from the carrying of surplus milk. When a milkman starts on his route, he is never able to tell exactly what amount of milk and cream his trade will require on that particular day. The loss seems to be avoided in most cases by carrying any unsold milk back home, placing it on ice and selling it out to the first customers visited on the following day. The large dealers report that they always use any unsold milk for making butter instead of placing it on the market the following day.

The figures as to cost of distribution by the direct-to-the-consumer method indicate that this system is financially more economical than the indirect method, but considering the fact that about seventy-two per cent of this milk is dipped from open cans on the street (in 1912-1913), that only a fraction of this class of dairies has steam available for sterilizing purposes, and that only an occasional one of these dairymen has been educated to the point where he has any adequate idea as to the requirements for the production and distribution of a reasonably satisfactory grade of milk, it is difficult to wax enthusiastic over the efficiency of the direct-to-the-consumer method as applied to milk distribution. However, there is an occasional dairyman of this class who takes a justifiable pride in the grade and cleanliness of his product, but inasmuch as pride in his product is almost the only extra return that the careful dairyman receives for his trouble over that received by his ignorant and slovenly competitor, the number of careful, cleanly, dairymen is not likely to increase very rapidly.

There seems to be a slight tendency for the direct-to-the-consumer dairymen to undersell the large milk companies. In April of 1913 the large milk companies were making a price of seven cents per quart to the family

trade, while eight of the eighteen local dairymen visited were giving fifteen quart tickets for a dollar, or a price of six and two-thirds cents per quart.

The consuming public of the Twin Cities has not responded generally in a way that has been financially encouraging to efforts on the part of a few progressive dairymen to furnish a high-grade milk supply. A leading Twin City dealer states that no attempt on the part of dairymen or dealers to furnish a sanitary grade of milk at an advanced price has been financially successful to those who have undertaken the venture. In purchasing eggs the consuming public will readily pay an advanced price for a superior article since any inferiority in quality is readily detected. In the case of milk, although a low bacterial count is one of the most important tests of high quality, the average consumer is ignorant of this, and judges quality almost entirely by the amount of cream that appears to be present. There are two reasons why the consumer attaches so little importance to the bacterial count: First, the average consumer has not been educated to the importance of the bacterial count in determining quality; second, the bacterial count can only be made by a trained scientist, and such findings are not available ordinarily except in so far as the results of bacterial counts made by city health departments from the milk offered for sale by the different dairymen are published in the local papers.

In the case of certified milk, the conditions under which the milk may be produced and handled are prescribed by local medical associations, so that the consumer who purchases a certified brand is assured of receiving high-grade milk. However, the average consumer seems to regard the price of these guaranteed brands as prohibitive except in so far as they are used to a certain extent for special purposes, such as the feeding of infants.

THE INDIRECT METHOD

As already explained, the indirect method of marketing milk refers to the handling of that part of the supply where some third party intervenes between consumer and producer. The milk that reaches the consumer by the indirect method is produced by farmers living so far from the city that it is not economical for them to deliver directly. Two methods of transportation are employed—railroad and teams. In some cases, milk is hauled a distance of twenty miles by team, and most of the milk that is produced within fifteen miles of the city is hauled in this way. Bulletin No. 53 of the State Dairy and Food Commission, published since this investigation was completed, shows data to the effect that about half of the Minneapolis milk supply is furnished by the local dairymen and about half by the large creameries. The same authority states that of the half distributed

by the large creameries about half is hauled in by team from Hennepin, Anoka, and Ramsey counties. The other half of the supply is shipped in by rail. Two thirds of that shipped by rail comes from Goodhue, Rice, and Dakota counties. From this it will be seen that the great bulk of the Twin City supply comes from within a radius of sixty miles.

The reasons for hauling by wagon are that it is just as cheap as railroad transportation, and that it has the advantage of delivering the milk at the dealer's place of business, rather than at the railroad station. Moreover, the milk hauled by wagon usually arrives in better condition because the wagon can start out when the milk is ready, while the trains frequently run too early in the morning to suit the convenience of the farmers, or too late in the day to bring the milk into the city in the best condition. But little milk is hauled by teams from the territory served by the "Dan Patch" Electric Line, since this line has convenient train schedules and a regular system of city delivery. None of the railroads offer refrigerator cars for the transportation of milk.

The milk delivered by the farmer to the morning milk trains is that from the milkings of the evening before and the same morning. This milk ordinarily reaches the city milk company about noon of the same day, and during the afternoon it is clarified (that is, all undissolved dirt is removed by special machinery), pasteurized, aerated, and bottled, and then held at a cool temperature for delivery on the following morning.

The only milk bottled in the country is that used for the certified and inspected grades which retail at fifteen and twelve cents per quart respectively. It is generally admitted that country bottling stations are desirable from a sanitary standpoint, because then the milk can be clarified, pasteurized, and bottled as soon as it is received from the farmer. The dealers in the Twin Cities state, however, that from the standpoint of economy country bottling stations are not desirable, due to the extra freight and breakage in transporting bottled milk, and to the unnecessary duplication of equipment involved.

The larger part of the milk supply is purchased by the city milk companies directly from individual farmers and a minor portion from local creameries which were originally established for the manufacture of butter and cheese but which now sell all or a part of their receipts of milk and cream to Twin City milk dealers.

The creameries within fifty miles of the city frequently make butter during the summer, when the supply of milk is abundant, and sell their milk for the city trade during the seasons when there is a keen demand for their milk. City dealers utilize this extra supply to make up for the shortage that always occurs in late fall and early winter. The result is that during the shortage season these creameries are able to sell at a higher price than the producers who have yearly contracts with the city dealers.

Some of the creameries that are between twenty and forty miles from the city sell a large part of their receipts in this way. Frequently these country creameries are coöperative organizations, and in that case the creamery acts for all practical purposes as a coöperative selling agency.

There are two Twin City milk companies each of which owns one or more country creameries. The owners have the creameries make butter or cheese during the early summer when the supply of milk is abundant; at other seasons they use the milk received by these creameries for their city milk trade. There is no organization at the present time among those who sell direct to the city dealers, but in at least one case reported to the writer a group of neighbors had an informal coöperative selling agency in that they selected a committee to negotiate with the city dealers, and the group then abided by the contract that their representatives were able to secure.

Sales are made by the producer in two ways: either a contract is signed by both parties for a year or other specified period that the contract is to run, or the farmer delivers his milk to the city dealer at a price that is determined from month to month according to the state of the market. Two dealers report that it is their practice to require the farmer to contract to furnish at least two thirds as many gallons daily in the months of November, December, and January as in the months of May, June, and July, but that no penalty is fixed in the contract, in case of failure to comply with this requirement.

A large part of the milk is bought on the gallon basis, but there is a strong feeling among the dealers that the butter-fat basis is more desirable. One of the avowed objects of the conference of the milk dealers in September, 1912, that led to the fining of five firms, was the bringing-about of a uniform system of buying from the farmers on the butter-fat basis. Inasmuch as the large companies standardize their product (that is, mix all their milk together and then either add or remove cream until it has a certain standard per cent of butter fat, usually three and one-half per cent), the question of purchasing according to the butter-fat basis is a very important one to them, but competition among the dealers in purchasing from the producer seems to prevent the general adoption of the butter-fat basis. At present, almost the only part of the city milk supply that is purchased by the dealers on a butter-fat basis is that secured from creameries.

There is a slight tendency among dealers to discriminate against milk that comes from farmers who usually furnish a product low in butter fat, but in general it may be stated that there is but little incentive for the producer to keep breeds of cattle that will furnish a high percentage of butter fat in the milk, or to use any particular care in keeping his stables and milk house in a clean, sanitary condition. In securing im-

proved service of any kind, no incentive has been found equal to that of increased financial returns for well-doing, and it is unreasonable to hope for any great improvement in the quality of our milk supply until some system is worked out that will reward the producer of a high-class article in proportion to the extra expense that its production entails.

It appears that far too much attention is given to the question of butter-fat content in determining quality and far too little to the sanitary conditions surrounding the production and handling of milk. One of the reasons for the use of the butter-fat test in determining quality is the fact that it is very easy to determine the fat content, while it is more difficult to work out a system of payment graded according to the sanitary conditions surrounding the production and handling of milk.

Statements were secured from eight Twin City dealers as to the average prices paid for milk delivered in the city of St. Paul or Minneapolis. The average price per gallon paid for each month from April, 1912, to March, 1913, inclusive follows:

April, 1912	\$0.1350
May, 1912 .....	.1225
June, 1912 .....	.1200
July, 1912 .....	.1240
August, 1912 .....	.1325
September, 1912 .....	.1400
October, 1912 .....	.1525
November, 1912 .....	.1563
December, 1912 .....	.1588
January, 1913 .....	.1538
February, 1913 .....	.1500
March, 1913 .....	.1450
<hr/>	
Average	\$0.1409*

This price represents the cost of milk to the city dealer, except that when it comes by rail there is the additional cost of hauling from the freight station to the plant. The average transportation charge is about two cents per gallon either by railroad or team. Where milk is hauled to the city by team the teamster ordinarily receives two cents per gallon. In some cases groups of farmers take turns among themselves in hauling their milk to town.

* In many sections of the United States milk is sold by the hundredweight. Taking the specific gravity as 1.032, the corresponding price per hundredweight would be \$1.64. Deducting two cents per gallon as the transportation charge, the average per hundredweight price to the farmer would be \$1.41.

There are four distinct methods by which the milk is distributed to the consumer from the plants of the large dealers.

1. It may be delivered directly to families from the retail wagons of the milk company.

2. It may be sold to stores at a price of one cent per quart less than the retail price.

3. It may be sold, after it has been clarified, pasteurized, and bottled, to peddlers who own their own horse and wagon. Peddlers are ordinarily charged about two cents less than the retail price with varying provisions as to the privilege of bringing back unsold milk.

4. It may be sold to restaurants, hotels, hospitals, and bakeries in five-gallon cans, after being clarified and pasteurized. Prices on can milk respond to differences in supply more readily than do the retail prices. The range of prices on can milk from April 1, 1912, to April 1, 1913, was from about sixteen to twenty-two cents per gallon. The average for the months of April, May, June, July, August, September, February, and March would be about eighteen cents, while the average for the months of October, November, December, and January would be about twenty cents per gallon.

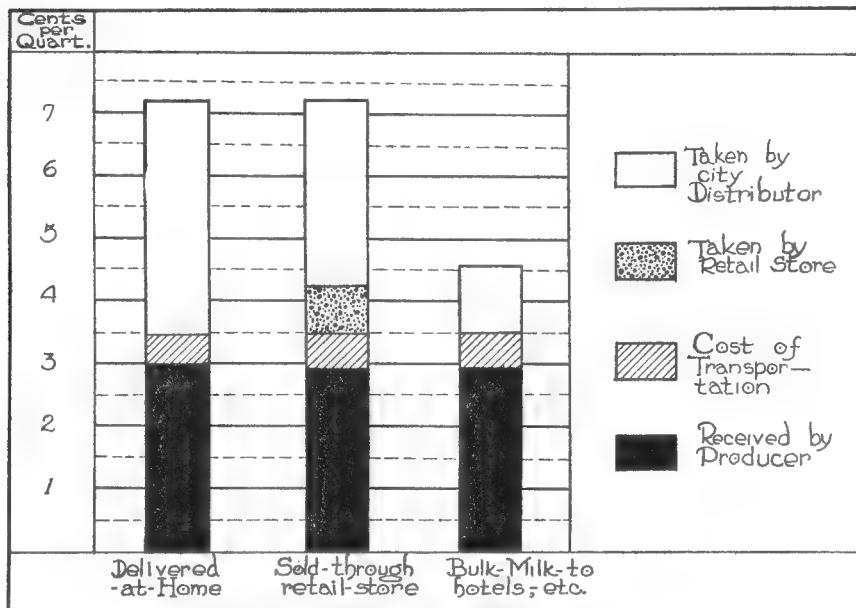


Diagram Showing Elements of Final Price of Milk Shipped into Minneapolis and Sold through Various Channels. (The figures are averages for the year ended March 31, 1913)

The following tables give the approximate distribution between producer, transporting agency, and the one or more middlemen, of the average retail price of a quart of milk. From April 1, 1912, to April 1, 1913, the retail price was eight cents per quart for four months, and seven cents for eight months, giving an average retail price of seven and one-third cents. It should be stated, however, that there were one or more dealers who did not raise the price to eight cents per quart during the winter months.

TABLE VI
MARGIN THAT EACH AGENCY SECURES FOR ITS SERVICES WHEN MILK GOES FROM CITY DEALER DIRECT TO THE FAMILY

Agencies receiving a portion of the retail price	Amount going to each agency (per quart)	Per cent of retail price
Farmer.....	\$0.0302	41.2
Transportation from producer to city.....	.0050	6.8
City distributors.....	.0381	52.0
Total	\$0.0733	100.0

TABLE VII
MARGIN THAT EACH AGENCY RECEIVES WHEN SOLD THROUGH DEALER AND RETAIL STORE

Agencies receiving a portion of the retail price	Amount going to each agency (per quart)	Per cent of retail price
Farmer.....	\$0.0302	41.2
Transportation from producer to city.....	.0050	6.8
City dealer.....	.0281	38.3
Storekeeper.....	.0100	13.7
Total.....	\$0.0733	100.0

TABLE VIII
MARGIN EACH AGENCY RECEIVES WHEN THE CITY DEALER SELLS CAN MILK TO RESTAURANTS, HOTELS, BAKERIES, ETC.

Agencies receiving a portion of the retail price	Amount going to each agency (per quart)	Per cent of price paid for can milk
Farmer.....	\$0.0302	64.7
Transportation from producer to city.....	.0050	10.7
City dealer.....	.0115	24.6
Total.....	\$0.0467	100.0

In the case of can milk, the average price to the restaurant keeper, bakery, etc., has been figured at 18.67 cents per gallon, or 4.67 cents per quart. This price was secured by taking an average price of eighteen cents per gallon for eight months and twenty cents per gallon for four months.

The fact that dealers are willing to take an average margin of 2.66 cents per quart less on can milk than on bottled milk delivered to families, indicates that the difference in price represents the approximate difference in cost of handling and delivering to the family trade as compared to wholesale trade.

At the time that the milk companies of Minneapolis were in the courts during the winter of 1912-1913 charged with conspiracy in restraint of trade, the then Minneapolis Milk Company published a statement in the Minneapolis papers as to the cost of distribution of milk as shown by cost accounts kept by that company. The author has no means of estimating the accuracy of this statement but believes that it is approximately correct. The figures then published are as follows:

Average price paid in the country from October 1, 1911, to October 1, 1912..	\$0.0288
Transportation charges from the country station to city railway depot.....	.0056
Total cost to city.....	\$0.0344
City expenses—	
Team and drivers' expenses, hauling milk from railroad cars to milk depot and return of empties.....	\$0.0004
Labor for handling milk, washing and sterilizing cans and bottles, for pas- teurizing, bottling, and capping of bottles, including loss and breakage..	.0077
Power, refrigeration, and light.....	.0007
Team expenses and horses, wagons, and harness.....	.0059
Salaries of deliverymen, helpers, foremen, and collectors.....	.0127
Bookkeeping, stationery, advertising matter, telephone, and bad debts.....	.0039
Shrinkage and loss in carrying surplus.....	.0047
Total city expense.....	\$0.0360
Total cost of milk.....	.0344
Grand total	\$0.0704

In conclusion, it has been shown that the cost of marketing milk by the direct-from-farm-to-consumer method is from 1.69 cents to 1.85 cents per quart depending on the method of calculation, as compared with well over three cents by the indirect method through large city dealers. By the latter method, however, the services performed in transportation, hauling, clarifying, pasteurizing, bottling, etc., are vastly more difficult and complex than by the former method, and the quality and cleanliness are superior. As a city increases in population it is able to draw a smaller and smaller proportion of its total milk supply from the territory immediately

adjacent, and therefore has to go farther and farther into the country. The wide spread between producer and consumer is due to heavy expenses of distribution and not to high profits obtained by the large milk companies. The principal problems connected with supplying a large city with milk are those of sanitation and of devising some system whereby the producer of high-quality, sanitary milk will receive greater returns than his careless and ignorant competitor.

MINNEAPOLIS CENTRAL CITY MARKET

BY R. MAYNARD PETERSON

As a food-distributing center, Minneapolis is important both as a collection point for products of the Northwest for distribution to other parts of the country and as a collection point for products from other parts of the country for distribution not only to city consumers but to other northwestern points. Since the city has a population of about 340,000 inhabitants, the distribution of products within the city itself presents problems common to other large cities of the country. An important feature of the marketing machinery is the Minneapolis Central City Market, not publicly owned as in many cities of the country, but a privately owned market place to which the farmers within hauling distance of the city may haul their products.

The growers around Minneapolis may sell their products through any of the following channels: Central City Market; commission men; retail stores; or shipment to other markets. Some growers have a special trade with city retail stores, but this is not a common practice. Most of the local fruits and vegetables are brought directly to the city market, where they are sold to retailers, commission men, and consumers, although many loads are sold in advance to commission men. Growers do not deal with commission men exclusively, and very little is shipped by local growers to outside markets. The growers need no license to sell their products at the Central Market and they may sell to whomever they please. If they have any vegetables left that they are unable to dispose of at the market, they often unload to a dealer on "Commission Row" at reduced rates or supply some grocer on the way home. Sometimes parts of the load are taken home to be brought back the next day.

Previous to the nineties, Minneapolis had no organized market place. The wagons were backed up to the curb on Bridge Square where the vegetables were exposed to the sun or rain until disposed of. This arrangement was entirely unsatisfactory and there was much agitation for a municipal market on the part of the growers. The city, however, refused to come to their assistance, so Mr. Gale, who was then a sort of market master, took the matter up with Mr. T. B. Walker and Major Camp, advising them to build a market as a private enterprise. These two men took the matter up with the City Council, who promised them free water and abatement of taxes, if they would construct and operate a central market. Subsequently



Minneapolis Central City Market

in 1892 Mr. Walker and Major Camp erected sheds and buildings covering the block between Sixth and Seventh Streets and Second and Third Avenues North.

In less than a year and a half the entire court was destroyed by fire. Major Camp refused to rebuild, so Mr. Walker erected new buildings on the same site and they stand to-day, practically the same as they were built at that time, except that the sheds run parallel to the streets instead of parallel to the avenues. It is interesting to note that the abatement of taxes did not last long and that free water for keeping the court clean was never furnished, according to a statement made by Mr. T. B. Walker.

The market court has three sheds which are twelve feet wide and 330 feet long, with stalls on each side, which are six feet wide. The wagons back up to raised platforms, which extend the full length of the market, and on these the products are displayed. The stalls are wide enough to accommodate the customary wagons, but the large trucks now coming into use need more space. This same condition exists in regard to the driveways between the sheds which are forty-five feet wide. During the early part of the season, these driveways are sufficiently wide to handle the traffic, but later, when the market is in full swing, with from 400 to 500 gardeners' wagons, it is almost impossible for teams to get in or out. On either side of the court there is a long narrow building, which is used for retail stores and restaurants. The walk in front of the south building has stalls for berry and apple growers who do not have regular stands for the entire season. There are, in all, 366 stalls and twenty-five retail stores and restaurants.

The market opens the first Saturday of May each year and continues until cold weather and snow prevent the growers from driving to town. Stalls for the entire season cost twenty-five dollars each, and for the berry season only, ten dollars each. A stall may be rented by two gardeners, who may occupy it on alternate days. Transients are charged twenty-five cents a day for the use of a stall. When a grower signs up for a stall, he agrees to the following rules and regulations:

"It being a special agreement under which this stand is rented, that the tenant only has the use of the same when personally occupying it with his wagon, with the horses off, and the pole or shafts detached and out of the way, and he is not to sublet for any part of this season nor have any control over the occupancy of this stand except when he is personally using the same, and it is optional with the Central City Market Company to put any other tenant in this stand when it becomes vacant, either by the absence of this tenant or by his non-payment of rent when it becomes due. The tenant occupying this stand also agrees not to deposit any decayed or spoiled vegetable matter on this stand or on the pavement in the driveway in front of this stand, and that all such refuse matter he may have on his load he

will remove from the market place, and that no huckster business will be done on this stall, and no sales to be made before 6 a. m."

By huckstering is meant in this contract the buying of products by a grower for the purpose of reselling on the Central Market. This regulation does not apply to certain stalls, twenty in number, which are rented expressly for the purpose of buying and reselling. Huckstering as a general practice on a market of this kind is not to be encouraged, but the setting aside of a few special stalls for this purpose helps to keep the market normal. Occasionally a man will come in with a load of one particular commodity, such as green onions or radishes. He may be a grower who comes to the market but rarely and does not know the general trend of prices, or he may knowingly cut the prevailing price heavily so as to run no chance of having to take his load back with him. If huckstering were not allowed, the market on that particular article would go to pieces and the other gardeners would be compelled to meet his price if they wished to sell out. This, however, is prevented by the hucksters who are always looking for an opportunity to buy at a low figure, enabling them to make a profit by reselling at the usual price. They occupy a position analogous to the "scalper" in the grain and live-stock trades.

This market is strictly a local growers' market and only local products can be sold on it. If shipped-in fruits and vegetables could be handled along with home-grown stuff, the competition would in times of plenty cause a heavy slump in prices. The market master realizes this and is always on the lookout for products that have been shipped in. This one ruling has been one of the most important factors in giving the Central Market of Minneapolis the reputation of being a most advantageous one from the standpoint of the local grower.

The market court itself, according to figures furnished by the market master, is far from being a paying proposition to the owner. The question naturally arises, Why does Mr. Walker continue to operate it at a loss? His explanation is as follows: He owns most of the buildings occupied by men commonly known as commission men, who buy and sell produce. These buildings are located near the market court and have a high rental value because of their location. If the market were to be moved to another part of the city, these buildings would depreciate in value very quickly.

The local growers have organized the Minneapolis Market Gardeners' Association. They are represented on the market by a committee of three who settle disputes of the various members, particularly when disputes arise with the market master. This association also exhibits a large display of fruits and vegetables at the Minnesota State Fair each year.

The Minneapolis market draws on a large territory, gardeners coming in from a radius of ten miles and, in a few cases, coming as far as fifteen miles. The market draws, not only from its normal territory, but also

from territory that should belong to St. Paul. There are approximately thirty-five gardeners coming to Minneapolis who live closer to the St. Paul market. Three of these gardeners live beyond St. Paul, one of whom drives past the market in that city each morning as he comes to Minneapolis. These gardeners claim that they are able to obtain enough better prices to warrant their coming the extra distance. One celery grower, who lives near the St. Paul market, says that he has to get up at one o'clock in the morning in order to reach the Minneapolis market before it opens. Of the fifty-nine gardeners that were interviewed, only one came from a distance of less than four miles; thirty-one came from four to six miles; and twenty-seven from seven to ten miles. The average distance was six and three-fourths miles. Fifteen per cent of the gardeners questioned delivered their products with automobile trucks, but this percentage would be much lower, probably less than five per cent, if all gardeners were considered. Only a portion of the gardeners come to market every day. Out of forty-two who were questioned on this point, seven came only three days per week, nine came four days, and twenty-six came five or six days, the average number coming a little less than five days per week.

Of these same forty-two gardeners, seven received fifteen dollars or less as an average income per load, twenty-eight received from twenty dollars to fifty dollars per load, and seven obtained over fifty dollars. The average received per load by the total forty-two gardeners was thirty-four dollars. Judging from the fact that the average gardener comes a little less than five days per week, his weekly gross income during the marketing season would be about \$160. Those farmers who come long distances three times a week with small loads really obtain very small recompense for their trouble, whereas many with large loads receive a fairly satisfactory return.

Although this market is mainly a wholesale market, it is also a consumer's market, and in the morning one may find from one hundred to four hundred consumers with baskets on their arms. They consist mostly of either the wealthier or the poorer classes, the middle class rarely coming except those few who run boarding houses, or who live very near the market. The wealthier class come in automobiles, leaving maids at home to do the housework. The middle class do their own work largely and do not find time to go to the market. On the other hand, the poor people, who also do their own work, are driven through necessity to take time enough to buy where foodstuffs are cheap. It is amusing, as well as instructive, to watch the various consumers drive their bargains. Some will approach a large box of lettuce, ask the price per dozen, and then go through the whole box looking for the largest heads. After turning most of the lettuce upside down, they open their purse and expect to pay for the two best heads in the box at the dozen rate. The gardener generally tells them that

he does not sell in less than dozen lots, while as a matter of fact he may be selling, to other consumers, two or four heads at the same rate that he sells a dozen heads to the grocer.

Practically the same consumers come to the market throughout the whole season, and they become pretty well known. Those who are in the habit of asking the price, taking the normal run of the products if they are satisfied with that price, or passing it up without argument if they are not satisfied, are the ones who get what they need at wholesale prices. There are some gardeners, however, who will always raise the price as soon as they see a consumer coming, but they are the exception rather than the rule, and anyone who has passed down the row asking prices knows at once that these growers are not setting the usual price. Anyone who is reasonable in his dealings can buy anything on the market at wholesale prices and get most things in fairly small quantities.

The following list shows the units of measure by which the products are sold. In some cases the units are too large for the ordinary consumer; for example, one-half bushel of string beans. But in these few cases several consumers can club together and take advantage of the wholesale price. Where a unit of measure is qualified by the words "or less," as in the case of asparagus, it means that practically any quantity can be purchased.

Vegetables

Asparagus, dozen bunches, or less.
Beans, string, bushel or half bushel.
Beans, Lima, quart.
Beets (by the bunch), dozen, or half dozen.
Beets (in bulk), one bushel.
Cabbage, one or one-half dozen heads.
Carrots (in bulk), one bushel.
Carrots (in bunches), one dozen or one-half dozen.
Cauliflower, one dozen or one-half dozen heads.
Celery, one dozen bunches.
Corn, one dozen ears.
Cucumbers, one bushel or one dozen; less than dozen when out of season.
Egg plant, one dozen, or less.
Endive, one dozen, or less.
Leek, one bunch.
Lettuce, one dozen or half dozen heads.
Muskmelons, one bushel or one dozen, or less.
Onions (green), one dozen or one-half dozen bunches.
Onions, (in bulk) one bushel.
Parsnips, one bushel.

Peppers, one dozen.
Peas, one bushel, or one-half bushel.
Pumpkins, one dozen, or less.
Potatoes, one bushel.
Radishes, one dozen, or one-half dozen bunches.
Rutabagas, one bushel.
Rhubarb, bushel basket, containing 35 to 40 lbs.; or sometimes sold by the bunch.
Salsify, one bunch.
Spinach, one bushel.
Squash, one dozen, or less.
Turnips (in bunches), one dozen, or less.
Turnips (bulk), one bushel.
Tomatoes, one bushel.
Watermelons, one dozen, or less.

Fruits

Apples, one bushel.
Currants, one crate.
Gooseberries, one crate.
Grapes, one basket or crate.
Plums, one bushel.
Raspberries, one crate.
Strawberries, one crate.

Plants

Asters, one crate of one dozen baskets, or one basket of one dozen plants.
Cabbage, one crate of one dozen baskets, or one basket of one dozen plants.
Cannas, one dozen plants.
Geraniums, one dozen plants.
Pansies, crate of one dozen baskets, or basket of one dozen plants.
Tomatoes, crate of one dozen baskets, or basket of one dozen plants.

Quotations for Minneapolis produce are given daily in both the *Minneapolis Journal* and *Minneapolis Tribune*. Little attention is paid to the Central Market in arriving at the quotation, which is obtained largely from the wholesale dealers. This price list is supposed to be checked up each day, but a careful study of the market shows that the quotations on fruits and vegetables are neglected at times. This was particularly noticeable the latter part of May, 1914, in regard to three commodities. While radishes were selling for a week or more at from ten to fifteen cents a dozen bunches, they were quoted at forty cents. Spinach, during the same time, was selling at twenty cents and twenty-five cents a bushel, but was continually quoted at eighty-five cents. Rhubarb sold on the Central Market at twenty-five cents or thirty-five cents a bushel basket, which is approximately thirty-five

pounds, but was quoted at five cents a pound, which would be a dollar and seventy-five cents a bushel basket.

The following tables show a comparison between the prices obtained by growers in the Central Market, the wholesale prices as quoted in the daily papers, and the retail prices in Minneapolis stores on June 29, July 2, and July 3, 1914. The Central Market prices were obtained directly from the growers on each day, and although all growers were not charging identical prices, what seemed to be the prevailing prices were taken. The retail prices were obtained by inquiry at retail stores, where vegetables of the same quality as those considered in the Central Market were selected. In some instances the Central Market and retail prices were obtained on identical lots of vegetables. In the fourth column of these tables are shown the proportions of retail prices received by farmers selling through the Central Market. The simple average for all cases shown below is 63.2 per cent. The difference between the Central Market price and the retail price indicates roughly the gross margin taken by the retailer.

June 29, 1914

	Central Market price	Wholesale quotations	Retail price	Per cent received by producer
Asparagus per dozen bunches.....	\$0.60-0.75	\$0.75	\$0.96	70.3*
Beets per dozen bunches.....	.30	.....	.40	75.0
Radishes per dozen bunches.....	.15	.40	.30	50.0
Carrots per dozen bunches.....	.25	.50	.60	41.7
Onions per dozen bunches.....	.25	.40	.40	62.5
Lettuce per dozen heads.....	.10	.20	.30	33.3
Cabbage per dozen heads.....	.90-1.00	.90	1.80	52.8*
Cauliflower per dozen heads.....	1.75	2.00	2.40	72.9
Cucumbers per dozen.....	.60	.75	.90	66.6
Rhubarb per bushel of approximately 35 pounds .....	.35	.70	.55	63.3
Peas per bushel.....	1.75-2.00	2.00	2.60	72.1*
Wax beans per bushel.....	3.50	3.50	3.75	93.3
Strawberries per 24-quart crate.....	3.25-3.50	4.00	4.32	78.1*

July 2, 1914

	Central Market price	Wholesale quotations	Retail price	Per cent received by producer
Asparagus per dozen bunches.....	\$0.80	\$0.75	\$0.96	83.3
Beets per dozen bunches.....	.25- .30	.....	.60	45.8*
Radishes per dozen bunches.....	.12- .15	.40	.30	45.0*
Carrots per dozen bunches.....	.25	.40	.60	41.7
Onions per dozen bunches.....	.20	.40	.30	66.7
Lettuce per dozen heads.....	.10	.20	.30	33.3

* The average Central Market price is used in computing this proportion.

July 2, 1914—Continued

	Central Market price	Wholesale quotations	Retail price	Per cent received by producer
Cabbage per dozen heads.....	.60-.75	.90	1.20	56.2*
Cauliflower per dozen heads.....	1.25-1.50	2.00	1.80	76.4*
Cucumbers per dozen.....	.50-.60	.75	.90	61.1*
Spinach per bushel.....	.75-1.00	.60	1.60	54.7*
Rhubarb per bushel of approximately 35 pounds .....	.30-.35	.70	.55	59.0*
Peas per bushel.....	1.50	2.00	1.80	83.3
Wax beans per bushel.....	3.00	3.00	3.75	80.0
Strawberries per 24-quart crate.....	3.00-3.25	4.00	4.80	65.1*
Currants per 24-quart crate.....	2.25-2.50	3.00	3.00	79.1*

July 3, 1914

	Central Market price	Wholesale quotations	Retail price	Per cent received by producer
Asparagus per dozen bunches.....	\$0.70-0.80	\$1.00	\$1.20	62.5*
Beets per dozen bunches.....	.20-.25	.....	.60	37.5*
Radishes per dozen bunches.....	.12-.15	.40	.20	67.5*
Carrots per dozen bunches.....	.25-.30	.40	.60	45.8*
Onions per dozen bunches.....	.25	.40	.30	83.3
Lettuce per dozen heads.....	.10	.20	.30	33.3
Cabbage per dozen heads.....	.75-.80	.90	1.20	64.6*
Cauliflower per dozen heads.....	1.75-2.25	2.00	2.40	83.3*
Cucumbers per dozen.....	.60	.75	.90	66.7
Rhubarb per bushel of approximately 35 pounds .....	.35	.70	.55	63.6
Peas per bushel.....	1.25-1.50	2.00	1.80	76.4*
Wax beans per bushel.....	2.75-3.00	3.00	3.75	76.7*
Strawberries per 24-quart crate.....	3.25	4.00	4.80	67.7

* The average Central Market price is used in computing this proportion.

COÖPERATIVE MARKETING OF GRAIN IN WESTERN CANADA

By L. D. H. WELD

The principal grain-growing provinces of Canada are, from east to west, Manitoba, Saskatchewan, and Alberta. The railroads of these provinces converge at Winnipeg, making it the greatest primary *wheat* market of the world. The receipts of wheat at this city for the year 1912-1913 were 238,000,000 bushels, as compared with 111,000,000 bushels at Minneapolis. Over seventy-five per cent of the wheat that is marketed through Winnipeg is exported; it passes on to Fort William and Port Arthur, located on the northern shore of Lake Superior, forming the Canadian head of the lakes just as Duluth and Superior form the American head of the lakes. To handle the immense business that passes through Winnipeg the grain dealers of that city have long been organized into the Winnipeg Grain Exchange, which is similar in essential respects to the Minneapolis Chamber of Commerce.

The development of the grain trade in Western Canada since 1900 has been attended by practically the same abuses and difficulties that appeared in the American Northwest during the seventies and eighties; there are line elevators, just as in the United States; shippers have found it difficult to get cars; low prices were paid to farmers at country points; complaints of under-weighing and of excessive dockage were frequent. The movement on the part of farmers which led to the organization of local farmers' elevators in Minnesota and other states has taken rather a different form in Canada, and has resulted in the formation of three large coöperative companies, one in each of the provinces. The Grain Growers' Grain Company, with headquarters in Winnipeg, is mainly a terminal-marketing company; the Saskatchewan Coöperative Elevator Company and the Alberta Farmers' Coöperative Elevator Company are primarily centralized organizations of country elevators, although the former also attends to the marketing of grain in Winnipeg. Taken together, these three companies constitute one of the most interesting and remarkable developments of coöperation among farmers in the world.

The agitation among the farmers of Western Canada against the unsatisfactory conditions of the grain trade first took the form of local grain dealers' associations, just as the farmers of the United States had expressed

their indignation through the formation of the Patrons of Husbandry many years before.¹ The first local Grain Dealers' Association was formed in 1901 in Saskatchewan; many others appeared within a few months, and in 1902 the movement spread into Manitoba, where thirty local associations had been organized by the spring of 1903.

To-day there are some two hundred and fifty local grain growers' associations in Manitoba, five hundred in Saskatchewan, and three hundred in Alberta. In Alberta these associations are known as the United Farmers of Alberta, or the "U. F. A." Each province has a central organization, with its executive officers and board of directors, and the central organizations of these three provinces are further federated into the Canadian Council of Agriculture, which is composed of the executives of the provincial organizations, together with the executive of the Dominion Grange, the farmers' organization of Ontario.

The objects of the grain growers' associations are primarily social and legislative. They aim to use their influence for better legislation bearing on the marketing, grading, and transportation of grain, to promote better education among farmers, and to encourage coöperation in the distribution of farm products and in the purchase of supplies. They have achieved such power as to affect profoundly legislation in the provinces, and it is only natural that the movement should have resulted in the formation of vast economic organizations whose main purpose is the coöperative marketing of grain.

THE GRAIN GROWERS' GRAIN COMPANY

The Grain Growers' Grain Company, the first of these companies to be formed, really originated in Saskatchewan, where the members of one of the local grain growers' associations conceived the idea of organizing a company which should obtain a seat on the Winnipeg Grain Exchange and act as a commission agent for consignments of grain. The actual organization took place at Sintaluta, Saskatchewan, in December, 1905, with about forty shareholders. In 1906 the Manitoba Grain Growers' Association became interested, and many farmers subscribed for stock. Agents were sent into the country to address meetings of farmers and to solicit stock subscriptions. In July, 1906, the first meeting of shareholders was held in Winnipeg. A seat was purchased in the Winnipeg Grain Exchange for \$2,500 and although the company was about \$1,700 in debt, a line of credit was secured by the joint signature of many farmers, and the company began business on the fifth of September, 1906.

¹On this and similar movements cf. S. J. Buck, *The Granger Movement* (Harvard University Press, 1913).

The history of the growth of this farmers' organization since 1906 furnishes one of the most interesting episodes in the history of the grain trade on the American continent. Starting in debt, entering a business in which the leaders had had no experience, meeting in competition the powerful and organized interests that had become established in the terminal market, and beset by difficulties from the very start, the company soon began to prosper, increased its business by leaps and bounds, and within six years had become the largest single handler of grain in the Winnipeg market.

The first and most important obstacle to be overcome was the attitude of the Winnipeg Grain Exchange. In October, 1906, the month after the company started in business, the Grain Growers' Grain Company issued a circular in which it announced its intention of paying a patronage dividend, that is, that after paying a fair rate of dividend to stockholders, it would distribute surplus profits to the shippers of grain in proportion to the amount of grain shipped by each. It was the original intention of the organizers to make the company coöperative in the strictest sense of the word. The one-man-one-vote principle was adopted at the very first, and the amount of stock that any one person could hold was limited. Then the company wanted to adopt the patronage dividend.

It was the proposed adoption of the patronage dividend to which the Winnipeg Exchange objected. The officials of that organization interpreted this method of distributing profits as amounting to the payment of a rebate to shippers, something that was against the rules of the exchange. The Grain Growers' Grain Company was expelled from membership (although the patronage dividend had not actually gone into effect), with the result that no member of the exchange could purchase grain from the company without charging the usual commission, which would of course leave the grain company without any revenue, as it in turn was dependent on the commission charged farmers who consigned grain to it.

The Winnipeg Grain Exchange is not alone in its objection to the patronage dividend; the organized exchanges of Minneapolis and Duluth hold the same view. Its explanation lies in the history of certain questionable practices of grain dealers. In the early days of organized grain trading it was found that lack of uniformity in commissions charged by dealers in terminal markets led to grave abuses. The commission men were and always have been fierce competitors for the grain shipments of farmers and of the elevators owned coöperatively by farmers. They send solicitors into the country who use their influence to obtain consignments. These solicitors have often offered special inducements, sometimes in the form of secret rebates to large individual shippers, and sometimes to the managers of farmers' elevators. In the latter case, the elevator managers would pocket the rebate for personal use.

This state of affairs tended to demoralize the grain trade, resulted in cut-throat competition, encouraged inefficient handling of farmers' consignments of grain at the primary markets, and put a premium on dishonesty, because the commission men were tempted to recoup their losses from rebating by manipulation of price returns. The grain exchanges consequently adopted the so-called "commission rule," fixing the commission to be charged at a certain amount per bushel (one cent in the case of wheat), and forbade the remission of any part of this commission to shippers. There was apparently good and sufficient reason for the adoption of this practice, and it has undoubtedly worked to the advantage of all engaged in the grain trade, including the farmers themselves.

But here comes a farmers' coöperative organization seeking membership in an organized grain exchange, and its method of distributing profits among shippers is interpreted as an infringement of the commission rule. The farmers can see no reason why the organized market place should be closed to them, just because they want to make their association coöperative. The grain exchanges claim that they have no objection to such a company provided it distributes all profits in the form of stock dividends. When the amount of stock that an individual may own is limited, and when the stockholders are also the grain shippers, the distribution of all profits as stock dividends corresponds roughly to the patronage dividend method; but the farmers of Canada wanted complete and thorough coöperation, and the Winnipeg Grain Exchange, prompted undoubtedly by fear of the power that such a farmers' organization might wield, promptly excluded them from membership.

Exclusion from the Winnipeg Grain Exchange was a serious matter for the Grain Growers' Grain Company. There is no market for wheat in or near Winnipeg outside of the exchange. What flour mills there are in Canada have their own lines of elevators and buy direct from farmers in the country. The situation is different in Minneapolis. Most of the wheat that comes to Minneapolis is bought by the flour mills of that city and by the numerous fair-sized country mills within a short distance, and it is therefore possible to sell a certain amount of grain without belonging to the organized exchange.

It was in October, 1906, that the Grain Growers' Grain Company was expelled from the Winnipeg Exchange. The manager went east and succeeded in finding a market for a considerable amount of grain, but it was necessary to belong to the exchange. The grain growers appealed to the Manitoba Government to compel the Winnipeg Grain Exchange to reinstate them, and the influence of the grain growers' associations described above was so great that the Government espoused the cause of the farmers, and took the position that the Grain Growers' Grain Company should not have been expelled. It even threatened to take away the charter of the grain

exchange. The latter, however, insisted that the Grain Growers' Grain Company could be readmitted only on condition that it abandon its intention of dividing profits on a patronage basis. This the grain company finally consented to do, and it was readmitted in April, 1907.

In some ways the fact that the Grain Growers' Grain Company has not been allowed to divide profits on a patronage basis has been a blessing in disguise, because otherwise the company would probably have paid out all its profits as dividends instead of building up a substantial reserve. At first, the profits were generously distributed. The first year there was paid a seven per cent dividend; the second year, a forty per cent; the third, a thirty per cent, the second and third dividends being applied in payment of stock held, and upon which only one call had been made. The original subscribers paid in cash only seven dollars and fifty cents for shares of twenty-five dollars par value; by the end of three years, dividends had paid for these shares in full. The checks representing the seven per cent cash dividend of the first year have been preserved and framed by many of the original members.

After 1909 the policy was changed; fifteen per cent dividends were declared in 1910, and only ten per cent since that time. As a result, a large reserve has been built up, and this has not only served as a source of financial strength, but has enabled the company to enter on various activities which have been beneficial to farmers.

The members of the Winnipeg Grain Exchange viewed with alarm the rapid increase of business of this farmers' company. In 1909 the exchange suspended the commission rule, which it had been so particular to enforce when the Grain Growers' Grain Company was expelled in 1906. The Grain Growers' Grain Company transacts business as a regular commission merchant, taking out one cent a bushel on consigned wheat from farmers. By suspending the commission rule the members of the grain exchange believed that the farmers' company would be hard hit; that it would have to handle wheat at one-half cent per bushel or less in order to get business, and that the company would thereby suffer a loss. The old established grain merchants believed that they could get along on a smaller profit, or no profit at all, until the Grain Growers' Grain Company should be driven from the field.

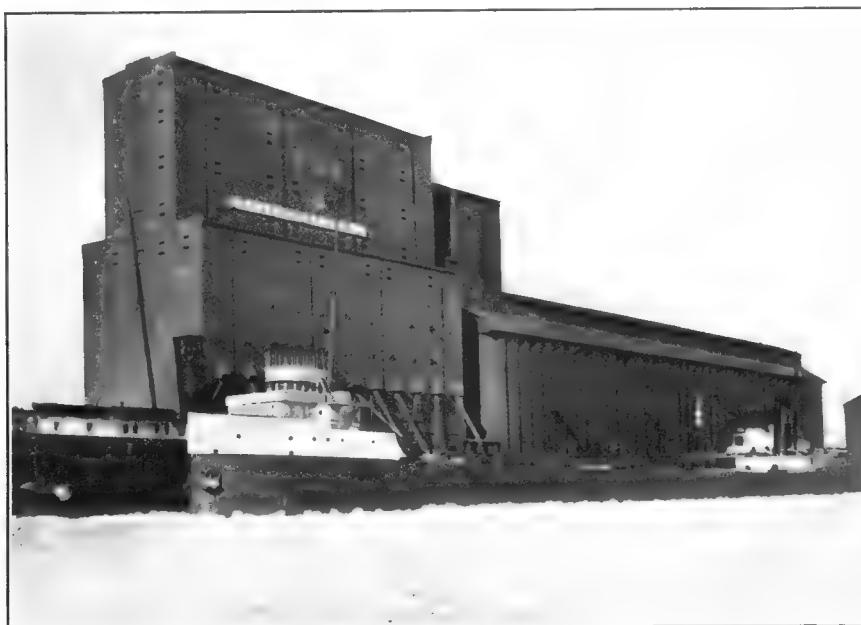
Confronted by this new difficulty, the officials of the Grain Growers' Grain Company explained the matter to its farmer members, and asked them how much commission it should charge. They told the company to continue to charge the full one-cent commission, and this the Grain Growers' Grain Company did, although the elevator companies and many of the commission merchants charged only one-half a cent and even one-quarter of a cent.

In the United States, one of the principal obstacles to successful co-operation has been the lack of loyalty of members when outside private com-





Type of Country Elevator Owned and Operated by the Grain Growers' Grain Company, Located at Isabella, Manitoba



Terminal Elevator at Fort William Operated by the Grain Growers' Grain Company with a Capacity of 2,500,000 Bushels

panies have offered them a slightly higher price for their products. Note the splendid loyalty of the Canadian farmers in this case. Although they could have got at least one-half cent a bushel more for their grain by shipping to outside commission men, they shipped more than ever to their own company. The Grain Growers' Grain Company handled 7,000,000 bushels of grain the year before the commission rule was suspended; during the year of its suspension it handled 16,000,000 bushels! The Winnipeg Grain Exchange, realizing the futility of this scheme, reestablished the commission rule the following year.

The rapid growth of the Grain Growers' Grain Company is shown by the following figures which indicate the total amount of grain handled each year since its organization:

	Bushels
Year ending June 30, 1907.....	2,340,000
Year ending June 30, 1908.....	4,990,542
Year ending June 30, 1909.....	7,643,146
Year ending June 30, 1910.....	16,332,645
Year ending June 30, 1911.....	18,845,305
Year ending June 30, 1912.....	27,775,000
Year ending June 30, 1913.....	29,975,000
Year ending June 30, 1914.....	29,920,000

The company started in business in 1906 with \$25,000 capital subscribed and \$5,000 paid up; by 1909 the capital subscribed amounted to \$188,950; in 1911 it was \$615,000; and on June 30, 1914, the subscribed capital was \$1,061,925, of which \$771,409 had been paid in.

The balance sheet as of August 31, 1914, shows total assets of \$1,531,782, including city real estate, elevators, and stocks of other corporations. Advances on bills of lading and other sums due the company alone amount to \$373,500. From its regular commissions and other operations the company earned a net profit of \$151,080. Out of this amount ten per cent dividends were paid, amounting to \$73,515, and a large part of the remainder was thrown into the reserve, which now totals \$215,000.

In 1911 the Grain Growers' Grain Company organized a subsidiary corporation to buy grain and export it to foreign countries. This is a difficult and intricate business, and although the company claims to have reduced the spread between farm prices and export values, thus benefiting the farmers, the company itself met with a huge loss of over \$200,000 during the year ending August 1, 1913. The loss was due largely to inexperience, but partly to the fact that some grain spoiled in transit. At any rate, the company was able to meet all its losses on this branch of the business and still emerge with a surplus of nearly \$200,000—a most remarkable record for a farmers' organization only six years old. Opponents of the

company have used this loss as an argument that coöperation in grain marketing is a failure. To draw such a conclusion is as fallacious as it would be to argue that private enterprise is a failure in grain marketing because a certain large firm,—well known in the grain trade—suffered a loss running into the millions in a few days not many months ago. The export business of the Grain Growers' Grain Company has been reorganized and is being conducted on a more careful and conservative basis.

The Grain Growers' Grain Company also operates grain elevators, both terminal and country. The Manitoba Government, in response to an agitation among grain growers, purchased 176 country elevators in Manitoba with the idea of ultimate government ownership of all elevators in that province. The Government paid too much for these elevators, and as many of them are poorly located, the Government naturally suffered a loss in trying to operate them.

In 1911 the Grain Growers' Grain Company leased these 176 country elevators from the Manitoba Government at an annual rental of six per cent of the cost of the elevators to the Government. During the first year, these elevators were operated at a loss to the company, although the farmers of Manitoba gained through more adequate shipping facilities. The year ending August 31, 1914, showed a slight profit from these country elevators, and the lease with the Provincial Government has been renewed for 1914-1915.

The company also operates huge terminal elevators at Fort William, leased from the Canadian Pacific Railroad, and having a total capacity of 2,500,000 bushels. During the year 1912-1913, 18,000,000 bushels of grain were handled through these elevators at a large profit. The company also owns a well-equipped elevator with cleaning equipment at Fort William, and a small elevator at Vancouver, British Columbia, through which it intends to enter the Pacific business.

This company is more than a grain-marketing concern, however. It acts as an agency through which supplies are sold to the farmers of Western Canada in carload lots. It distributes coal at a saving of from two to three dollars a ton; it distributes apples in car lots direct from the fruit growers' associations of Ontario; it sells flour, and has even been experimenting in the operation of a small flour mill from which it ships direct to local grain growers' associations; it has also bought a huge timber tract in Western Canada, where it intends to erect saw mills, from which lumber will be distributed at cost. It is in such enterprises as this that it intends to invest capital subscribed in the future.

The company has been rapidly adding other commodities which are handled in this way, and the following statement indicates the quantities of such commodities handled during the year ended August 31, 1914:

Commodity	Date when first handled	Quantity
Coal	October, 1913	8,926 tons
Apples	October, 1913	5,336 barrels
Lumber	March, 1914	89 carloads
Fence posts	March, 1914	60 carloads
Flour .....	.....	213 carloads
Woven fence wire.....	April, 1914	190,280 rods
Barbed wire	April, 1914	8,581 rolls of 80 rods
Binder twine .....	.....	2,395,400 pounds

The company estimates that it has saved the farmers of Western Canada \$60,000 on binder twine alone.

In addition to these various activities the company through a subsidiary corporation owns a well-equipped printing establishment in Winnipeg and publishes its own paper, the *Grain Growers' Guide*, which has a larger circulation than any other farm paper in Western Canada, and which acts as the official organ not only of the *Grain Growers' Grain Company* but also of the powerful *Grain Growers' Associations*. The printing plant also does a large commercial printing business.

To handle this immense business with its many ramifications the company has offices in Winnipeg, Fort William, Calgary, and Vancouver. There are over 350 employees during the busy part of the year.

Although there is perhaps some danger that this great company may "grow away" from the farmers of Western Canada, it is apparent that it is being operated solely in their interests, and that the farmer members are enthusiastic and loyal. It has been of incalculable benefit to them, through reducing the spread between farm prices and Winnipeg prices; through savings effected by supplying commodities to farmers at cost; and through tending to make Canadian farmers more business-like and independent. The company is managed conservatively, and there is every prospect of its continued and successful existence.

THE SASKATCHEWAN COÖPERATIVE ELEVATOR COMPANY

The movement which led to government purchase and operation of country elevators in Manitoba resulted in the appointment of a commission in Saskatchewan to study the grain situation and to report on the feasibility of government ownership of elevators.

In the United States we are not accustomed to expect much from such commissions. With us political preferment usually plays a part in their appointment, and their recommendations are not likely to be followed by the legislature. But the Saskatchewan commission was appointed for the purpose of actually accomplishing something. It consisted of three commissioners—a member of the provincial legislature, a college professor, and

the secretary of the Saskatchewan Grain Growers' Association. Hearings were held at sixteen different places in the province, and an impartial and convincing report was made. This was in the fall of 1910.

The report of the Saskatchewan Elevator Commission² advised strongly against government ownership and operation of country elevators, on the ground that such a scheme would probably not be satisfactory to the farmers, and that it would undoubtedly end in financial disaster. The commission presented an alternative plan—a system of farmers' coöperative elevators, to be built largely by government loans, but managed by the farmers themselves through a central organization. It was pointed out that a direct pecuniary interest on the part of the farmer was needed to make the elevators a success in competing with the established line elevators.

Saskatchewan already had a few farmers' elevators. There had been nine established before 1900, but the number had increased slowly. An impetus had been given to the movement in 1906, and by 1910 there were twenty-nine in the Province. The Elevator Commission studied these elevators carefully, and found that many failures had occurred among them. The reasons for such failures it asserted were, first, poor management (insufficient paid-up capital, inefficient managers, liberality with respect to dockage, and undue interference on the part of directors and shareholders); and, second, competition of elevator companies, new railroad lines, and loading platforms. The commission decided, however, that as a class the farmers' elevators had been successful. These had, of course, been built by local groups of farmers on their own initiative without public aid and without centralized management, just as farmers' elevators have been built in the United States.

The report of the commission met with universal favor and the Saskatchewan Coöperative Elevator Company Act was passed by the legislature on March 14, 1911, about four months after the commission made its report. The most important provisions of this act³ are as follows: shares of fifty dollars each, to be held only by agriculturists; no person to hold more than ten shares; local associations to be formed by stockholders to build elevators at country points with the proviso that there should be 2,000 acres under cultivation for each 10,000 bushels of elevator capacity; at least fifteen per cent of the par value of stocks to be paid by subscribers, and the remaining eighty-five per cent of the money necessary to build the elevators to be loaned by the government; this government loan to be repaid in twenty equal annual installments including interest; the company to be managed by a board of directors elected by shareholders, each

²This was published as *Report of the Elevator Commission of the Province of Saskatchewan*, 1910, Regina: John A. Reid, Government Printer.

³The full text of this act, together with an explanation of its provisions and also by-laws of the company, was published as Pamphlet No. 1, by the Saskatchewan Coöperative Elevator Company, Ltd., Regina.

member to have but one vote. The rate of interest on the government loan is only five per cent. Dividends on stock are limited to six per cent; adequate provision is made for the accumulation of a reserve, and for the distribution of profits on a patronage basis.

No time was lost by the farmers of Saskatchewan in availing themselves of the advantages offered by this interesting legislation. The Saskatchewan Coöperative Elevator Company was permanently organized on July 6, 1911. Plans and specifications for elevators were soon adopted. Contracts were let for the building of forty elevators to be completed at various dates from October 1 to November 15 of that same year. Things move rapidly in Western Canada. Six other elevators were purchased by December and grain began to be handled as soon as elevators were completed or bought. In other words, the company was actively engaged in the grain business within six months after the act of incorporation was passed by the Provincial Legislature, and within two months after permanent organization of the company had been perfected. Arrangements were made with one of the leading banks of Canada whereby a line of credit of half a million dollars was made available for the purchase of grain.

An agreement was entered into with the Grain Growers' Grain Company of Winnipeg, whereby that firm became the selling agent for the company's grain for the first season, and "the wisdom of the arrangement," as the board of directors said in their first annual report, "has been proved by the satisfactory working of it."⁴ Under this management the Grain Growers' Grain Company handled the grain of the Saskatchewan Company for one-half cent per bushel commission. In order to make this possible the Saskatchewan Company took out a membership in the Winnipeg Grain Exchange, whose rules allow one member to handle grain for another member at one-half cent commission. In June, 1912, however, the board of directors decided that "the growth of the business demanded that the work of selling the company's grain should not in future be entrusted to agents, however competent and trustworthy," and the necessary steps were taken to organize a sales and commission department in Winnipeg, which should sell grain directly on the floor of the Grain Exchange. Thus in addition to the Grain Growers' Grain Company, there is now another immense farmers' organization marketing grain in Winnipeg. By the end of the first year, 8,962 farmers had subscribed for \$1,177,200 worth of stock; in 1913 the number of subscribers had increased to 13,156, and the subscribed capital to \$1,818,000. During the first year, forty elevators were operated; during the second year, 137; and in the fall of 1913 there were 192 elevators

⁴ Annual reports have been published for general distribution by the Saskatchewan Coöperative Elevator Company, Ltd., Regina, and condensed reports have appeared in the *Grain Growers' Guide*.

in operation, which also means that there were 192 local organizations of farmers belonging to the central organization.

The phenomenal growth of the Saskatchewan company is indicated more clearly by the increase in the volume of business. During the first year it handled 3,261,000 bushels of grain; during the second year it handled 12,900,000 bushels. About one third of this was bought outright by the company, and the remainder was "special binned," for farmers, meaning that the grain was stored in small compartments in the elevators and that the identity of the grain of each individual shipper was maintained. This is an interesting feature of the grain business in Canada. Farmers like to store their grain rather than sell it to the elevator company; they want their grain kept separate and then ship a carload at a time to the primary market. Such shipments are handled on consignment by the sales agent of the central organization on the Winnipeg Exchange.

At the end of the second year of operation the company had a clear profit of \$167,926. After the payment of dividends to shareholders, an amount representing three dollars per share was applied to increase the paid-up capital of all shareholders. The remainder was thrown into reserves. The balance sheet showed total assets of \$1,709,000, of which \$1,290,000 represented the value of country elevators. The loan from the Saskatchewan Government to the company stood at \$1,206,000 on July 2, 1913.

The growth of the company is also strikingly illustrated by the rapid increase in the number of employees. It started its organization work in 1911 with an office staff of one. On July 31, 1913, there were 310 persons in the operating department, 63 at the head office, 22 in the Winnipeg office, and 145 in the construction department, making a total of 540. The company has naturally had difficulty in finding and developing efficient managers. That it has been able to expand its organization so rapidly as to handle its immense volume of business efficiently is a monument to the ability of the farmer of Western Canada.

THE ALBERTA FARMERS' COÖPERATIVE ELEVATOR COMPANY

After the foregoing description of the Saskatchewan Coöperative Elevator Company, it is needless to enter into the details of the movement as it has developed in Alberta. The farmers of that province were suffering from monopoly control of the few elevators already in existence, and they were in great need of more elevators. The United Farmers of Alberta, corresponding to the Grain Growers' Associations of Manitoba and Saskatchewan, were responsible for the agitation, and the Provincial Government did not hesitate to do its part. The movement began a little later in this province; the Manitoba experience had demonstrated the futility of government ownership and operation of country elevators, and Alberta

naturally followed the example of Saskatchewan, whose experiment in government loans to coöperative elevators had started out so auspiciously.

The act providing for the incorporation of the Alberta Farmers' Coöperative Elevator Company, Limited, was passed by the Alberta legislature in January, 1913, without a dissenting vote. The provisions are similar to those of the Saskatchewan act. The government makes loans to local associations of farmers up to eighty-five per cent of the cost of the elevators, to be repaid in twenty annual installments with interest at five per cent. Less power is reposed in the central organization, and more in the local elevator associations. The shares are sixty dollars each, and the stock dividends are to be at the rate of eight per cent.

That the passage of this law was welcomed by the farmers of Alberta is evident from the fact that within eight months of its passage, fifty elevators had been built and were open for business in time to handle the 1913 crop. By the summer of 1914 there were in the neighborhood of sixty-five elevators. During the season 1913-1914 there were marketed nearly 4,000,000 bushels of grain, at a profit to the company of \$14,000. The grain is handled in Winnipeg by the Grain Growers' Grain Company, which also finances the elevators in their purchases and shipments.

The president of the company in his last annual report said: "We have demonstrated the power of coöperation. At points where no coöperative elevators were operating we have been shown what treatment the Alberta farmers would have received had our company not been in existence. We have farmers who have drawn their grain twenty to thirty miles to our elevator rather than sell to those close at home."⁵

The Alberta Company has recently organized a live-stock department which between July 1 and October 1, 1914, marketed 180 cars of hogs, saving the farmers from one-fourth to one-half cent a pound. The company is definitely planning to have its own packing plant when the number of hogs handled reaches 50,000 a year.

CONCLUSION

The history of these three Canadian companies furnishes many interesting lessons for farmers of the American Northwest. Most of the farmers' organizations of the United States are independent and unfederated units. The California Fruit Growers' Exchange is perhaps the only organization in this country that can compare with these Canadian companies in number of members and volume of business handled. The power of

⁵ Information on this company was obtained from the annual reports as they appeared in the *Grain Growers' Guide*. The law providing for the incorporation of this company has been published separately. Chapter 13, 1913, J. W. Jeffery, Government Printer, Edmonton, Alberta. The headquarters of the company are at Calgary.

united effort on a large scale is perhaps the most conspicuous object lesson that the Canadian experience offers.

The business success of Canadian farmers has had a beneficial effect in tempering and rationalizing their attitude toward commercial organization and methods in general and toward the operations of grain exchanges in particular. When the Grain Growers' Grain Company was first organized, the leaders of the movement held the most exaggerated notions about the practices of grain exchanges and the evil influences of future trading. To-day, these same men are transacting their business in the "pit" of the Winnipeg Grain Exchange, and they are buying and selling options to protect their transactions. They have come to view the matter from a different standpoint, and the education that they have received is resulting in a more rational and conservative attitude among Canadian farmers in general. It should also be borne in mind in connection with the development of these companies, that they did not spring up from a mass of previously unorganized farmers. Rather, they have as a background, the powerful and well-organized Grain Growers' Associations of Manitoba and Saskatchewan, and the United Farmers of Alberta. Such vast and successful economic organizations as those described above would perhaps have been impossible if the farmers had not already been organized for social and political purposes.

THE FOOD SUPPLY OF THE IRON RANGE

By L. D. H. WELD

As a general rule, the residents of Minnesota towns and villages have an advantage over people living in the Twin Cities or Duluth with respect to the prices which they have to pay for products of Minnesota farms. Such products are sold by farmers either to village people directly or through the country store. For farm products which have to be brought to Minnesota from other parts of the country, on the other hand, the larger cities have a slight advantage, in that such products are brought in car lots first to such distributing centers as Minneapolis and St. Paul and then shipped out in small lots to the villages of the State.

The Iron Range¹ in Northern Minnesota, however, is disadvantageously situated with respect to both Minnesota-grown products, and products that have to be shipped in from other parts of the country. In this section of the State there are numerous towns and villages much nearer each other than towns in other parts of the State, and altogether they constitute a fairly large consuming population. But the towns are located as they are, not because they are the centers of farming communities, as in other parts of the State, but because of the proximity of the iron-ore mines, which furnish employment for thousands of men. In fact agricultural development is only beginning in the Range country. It must be added, however, that the inhabitants of this section of the State, and the railroads which own lands, realize that its future prosperity and growth depend largely on the development of agriculture and they are doing their utmost to settle the country with farmers.

Largely because of this backwardness of agriculture the problem of supplying the Range with food products is a difficult one. Not only this, but the Range country is situated in the most northern part of the United States at a considerable distance from the food-producing regions. The population, though fairly large, is not sufficiently concentrated to allow the shipment of food products in carload lots (although this is developing in a small way) and consequently goods are brought in in comparatively small amounts, and at relatively high local freight and express rates. No wholesale grocery or produce house has yet been established in any of the Range towns.

¹ In this paper the term "Iron Range" means the Mesabi Range. The information was obtained in Virginia, Hibbing, and Eveleth.

In general, the range towns are supplied with foodstuffs by Duluth wholesalers although some Twin City and Chicago houses send salesmen into the region. This dominance of Duluth as a supply depot is especially true of general groceries, and to a great extent of perishable products, although the latter are also brought in considerable quantities direct from producing points in Northern and Eastern Minnesota. Even butter comes largely from Duluth centralizers and packers, although there are many instances of direct shipment from country creameries to retail stores. There is practically no butter made on the Range except a small amount in Hibbing. However, the creamery at that point does not make enough to supply its own local trade, and has to ship in butter that is made in another creamery farther South, but owned and operated by the Hibbing company. Butter is handled by the stores largely in prints, but considerable quantities are sold in jars and in bulk. Very little farm-made butter is brought to the stores and existing conditions furnish an opportunity as yet unused for other creameries in Eastern and Northern Minnesota to develop a direct trade with the stores on the Range.

Eggs are bought largely from Duluth wholesalers, but considerable quantities are also obtained directly from country stores and small local dealers in Northern Minnesota, especially along the lines of the Great Northern Railroad. This direct purchase is apparently not increasing. Some Range stores have even had to give it up because of the irregularity and uncertainty of receipts during the greater part of the year, and because of unreliability in quality. The result is that the eggs sold on the Range are reputed to be of inferior quality. Poultry is also obtained partly from Duluth, but largely from dealers and storekeepers in Northern Minnesota who ship chickens alive by express.

Potatoes are the only food product which is supplied largely by farmers living in close proximity to the Range towns. Farmers haul them directly to the stores in many of the towns, where they receive in exchange either cash or trade. The local supply of potatoes is not sufficient for the local demand, however, and they are bought to some extent of Duluth wholesalers, and also from dealers in other parts of the State. An interesting development is the bringing-in of carloads of such commodities as potatoes, cabbage, apples, etc., to be sold directly to retailers. A grower, or a dealer who buys up a carload in Wisconsin or in the Twin Cities, sends it to one of the more important towns on the Range. He accompanies the car and goes around from store to store to sell out his carload. Sometimes retailers buy on the description of such a carload seller, and sometimes they inspect the goods in the car; at any rate the retailers send their own teams to the cars to haul their purchases away. This method suggests the possible development of a wholesale produce business in the near future.

The milk problem is a difficult one, and since practically all the milk used in the larger towns has to be shipped in, the price is high. In October, 1914, milk was selling at ten cents in Virginia and Hibbing, whereas the Twin City price was eight cents. Dairying has begun to develop and there are a few fine dairy farms near some of the principal towns and when milk is shipped in it comes from no very great distance, although some is obtained from points about fifty miles away. A somewhat unusual feature of the milk and cream trade in Virginia is the demand on the part of some of the Hebrew population for sour cream. Sometimes a dealer in that city purposely allows his cream to sour in order to have a supply on hand.

Meats are supplied to the Range towns from the packers' distributing houses in Duluth. The prices of meat, as shown below, are much higher than in the Twin Cities, and there is very serious complaint about the quality of the meat carried by the local butchers. The feeling is so strong in Virginia that there is a movement on foot to establish a coöperative meat market. One interesting feature of meat prices on the Range is that whereas the price of porterhouse steak is lower than in the Twin Cities, the price of sirloin is about the same, and the price of round much higher. In other words, the Twin City prices are differentiated more in respect to the different cuts than are the Range prices. Apparently "meat is meat" on the Range; the discriminating demand for really choice cuts is relatively slight.

AVERAGE RETAIL PRICES OF CERTAIN COMMODITIES IN IRON RANGE TOWNS, AND IN TWIN CITIES, OCTOBER 22, 1914

COMMODITY	UNIT OF MEASURE	AVERAGE PRICES		RATIO RANGE PRICE TO TWIN CITY PRICE
		Range Towns	Twin Cities	
Butter.....	Pound.....	Cents 36.6	Cents 37.1	98.7
Eggs.....	Dozen.....	30.4	33.3	91.2
Potatoes.....	Bushel.....	81.3	65.6	123.9
Potatoes.....	Peck.....	23.1	16.7	138.3
Sugar.....	Pound.....	7.7	7.1	108.4
Spring chicken.....	Pound.....	20.6	18.3	112.6
Stewing fowl.....	Pound.....	19.6	17.7	110.7
Porterhouse steak.....	Pound.....	31.4	33.3	94.3
Sirloin steak.....	Pound.....	27.4	26.3	104.2
Round steak.....	Pound.....	24.4	21.7	112.4
Rib roast (untrimmed).....	Pound.....	22.2	23.3	95.3
Leg of lamb.....	Pound.....	24.4	18.3	133.3
Pork loin.....	Pound.....	20.8	19.3	107.7
Pork chops.....	Pound.....	22.0	20.0	110.0
Milk.....	Quart.....	10.0	8.0	125.0
Average.....	.....	.....	.....	111.0

The table above gives a comparison made on October 22, 1914, between Range prices and Twin City retail prices for a number of important com-

modities. Prices were obtained on this date in ten retail stores located in Hibbing, Virginia, and Eveleth, and also in ten stores located in Minneapolis and St. Paul. These were then averaged for each commodity, and the last column in the table shows what per cent the Range price is of the Twin City price in each case.

The average in the last line is an unweighted one, and can be interpreted only as an indication that the Range prices on these commodities average about ten or eleven per cent higher than Twin City prices. Whether these higher prices constitute a proportionately heavier burden on the inhabitants of the Range can not be definitely determined without making a comparison of relative incomes, but it is safe to conclude that one's earning capacity must be greater on the Range than in the Twin Cities in order to enable him to maintain the same standard of living. It is also safe to conclude that in times of business depression, such as have affected the Range towns during 1914, the higher cost of living becomes relatively more important.

The high prices on the Range and the consequent discontent have led to a number of interesting attempts on the part of consumers to reduce the cost of living, mainly by means of coöperative stores. There are at least a dozen coöperative stores in the different towns, and they have been organized principally among the Finnish people, who constitute a large proportion of the population. The Finns undoubtedly brought their tendency to coöperate from Finland, where since 1900 there has been a very rapid and spectacular development of various kinds of coöperation. One unique feature of the Finnish coöperative stores on the Range is that of the 120 or so coöperative stores in Minnesota, practically all outside the Range area have been organized among farmers, whereas these on the Range are primarily among work people of the towns.

One of the largest of these coöperative stores is the Virginia Work People's Trading Company. It was organized in 1909 and has 225 stockholders. The par value of stock is ten dollars. About \$6,000 of capital has been paid in, and during the year ended December 31, 1913, the store did a gross business of \$80,000. Six per cent stock dividends and three per cent trade dividends are paid, the latter in stock, however, and not in cash. When the trade dividend amounts to less than ten dollars the customer has the privilege of paying the remainder in cash in order to get a share of stock, or of letting it stand to his credit until enough has accumulated to pay for the issue of a share.

The store appears to be managed conservatively and now has a surplus of about \$3,000. The company owns property in Virginia worth about \$10,000, all of which, except \$1,500, has been paid for. When a member moves away, the company redeems his stock. The store is neat in appearance and carries a good stock worth about \$10,000. It takes orders by telephone and

delivers once a day to all parts of the city. The significance of the number and importance of these enterprises is shown by a movement now on foot to effect the organization of a league of Finnish coöperative stores.

High prices have also led to a most interesting marketing experiment in the shape of a public market at Eveleth, a city which had 7,000 inhabitants in 1910. This was started by the city during the summer of 1914 at a cost of about \$10,000. The plant consists of a market house, a barn, and sheds. There are a good many farmers located near the city, and the market master claims that some haul their goods from points twenty-five or thirty miles distant. The number of farmers coming to market on any one day is not large.

Farmers may stay at the market and sell their own products, or they may leave them in charge of the market master, who sells them without charging any commission. More common, however, than either of these methods is the outright purchase of the commodities from the farmers by the market master. The master is governed by Duluth wholesale prices in his purchases, and he sells the commodities to consumers in any quantity desired at practically the same price which he pays. In other words, he does not even allow a margin to cover the cost of operating the market. Goods are sold by the market master to city consumers who are allowed to buy as little as five cents' worth at a time. Everything is sold by weight. Customers must bring baskets or bags in which to pack their purchases. The volume of business is not great, but during the afternoon on which the writer visited the market, there was a fairly steady stream of purchasers.

This market not only handles commodities brought in by farmers, but it ships in butter and eggs, and also fish from outside points. These commodities are sold at practically what they cost the market delivered at Eveleth. On October 22, 1914, white fish was selling for nine cents per pound while the stores were charging eighteen cents; lake trout for twelve cents while the stores were charging twenty cents.

Although this market was undoubtedly selling goods at much lower prices than the stores, its method of doing business had aroused bitter opposition among the storekeepers of the city. Under the present system, the city itself is not only engaging in the mercantile business in competition with private individuals, but it is doing business at much less than cost and taxing the inhabitants to pay the expenses of the market. This is of course the wrong principle for a public market to follow, and the merchants have a legitimate grievance. All that a public market may wisely do is to provide a market place with suitable facilities and charge fees for the use of such facilities to cover the cost of maintenance and operation. It is not the city's function to buy or sell merchandise handled by the retail stores, or to set the prices at which such merchandise shall be sold.

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